THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XXII. of Vol. I., 1920. No. 5048. Vol. CXCVIII. LONDON, SATURDAY, MAY 29, 1920. Founded 1823. Registered as a Newspaper. Published Weekly. Pp. 112—Price 1s. Annual Subscription Inland £2 2s. Abroad £2 10s.

SECOND EDITION. 15s. net.

BY HERBERT J. PATERSON, M.C., M.B. (Cantab.), F.R.C.S.

THE SURGERY OF THE STOMACH:

A Handbook of Diagnosis and Treatment.

"A masterpiece among monographs."—THE PRACTITIONER.

James Nisbet & Co., London, W.

Now Ready. With 579 Illustrations. 25s. net, postage 9d.

STARLING'S PRINCIPLES OF PHYSIOLOGY

NEW THIRD EDITION. THOROUGHLY REVISED.

"*A full and up-to-date account of the whole subject, clearly written, excellently illustrated, and summarized by a practical physiologist of great knowledge and well-known originality.*"
—BRIT. MED. JOUR., 15th May, 1920.

London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

Price 21s. net. Post free (inland), 21s. 9d.

NINETEENTH EDITION (REPRINTED).

SQUIRE'S COMPANION.

"SQUIRE'S COMPANION is a work of great practical value to medical practitioners, as well as to pharmaceutical chemists, dispensers, and pharmacologists."—THE BRITISH MEDICAL JOURNAL.

Published by J. & A. Churchill, 7, Great Marlborough-st., London, W. 1.

ESSAYS ON THE SURGERY OF THE TEMPORAL BONE.

By Sir CHARLES A. BALLANCE, K.C.M.G., C.B., M.V.O., M.S., F.R.C.S., Consulting Surgeon to St. Thomas's Hospital, &c.
Illustrated by 125 Plates (40 in Colour) and 120 Figures.
In 2 Volumes. Medium 4to. Price 5 guineas.
Macmillan & Co.

BONESETTING and the TREATMENT of PAINFUL JOINTS.

By FRANK ROMER, M.R.C.S., L.R.C.P., and L. ELIOT CREASY, M.R.C.S., L.R.C.P.

Crown 8vo, 1s. net.

"Messrs. Romer and Creasy strip this branch of practice of the cloud of mystery and miracle which has been thrown around it by interested people and well-meaning but ignorant supporters. They effectually disprove the foolish charge that the medical profession has wilfully ignored the subject, and they have dealt with it in an unprejudiced spirit. Moreover, they bear witness to the fact that the profession keeps an open mind as to everything connected with the treatment of disease and the relief of pain and physical disability, and is willing to learn from any source anything that may seem likely to be useful for these purposes."—BRITISH MEDICAL JOURNAL.

James Nisbet & Co., Limited, 22, Berners-street, W.

OXFORD MEDICAL PUBLICATIONS.

Ready Shortly.

STUDIES IN NEUROLOGY.

By HENRY HEAD, M.D., F.R.C.P., F.R.S.

Crown 4to. 2 Vols. 882 pages. With 182 Illustrations.
Price £3 3s. net.

INFECTIOUS DISEASES: A PRACTICAL TEXT-BOOK.

By CLAUDE BUCHANAN KER, M.D., F.R.C.P. (Edin.), Medical Superintendent, City Hospital, Edinburgh; and Lecturer on Infectious Diseases to the University of Edinburgh.

Second Edition. Crown 4to. Cloth. Pp. 640. Illustrated by 68 Charts and 32 Plates, 12 of which are in Colour.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

ELLIS'S MEDICAL LIBRARY

FOR

NEW BOOKS OF ALL PUBLISHERS.

See also Page 2.

9, Lovell's Court, Paternoster-row, London, E.C. 4.

Royal 8vo. 395 pages. 12 Plates and 72 Illustrations. Cloth. 15s. net.

GONORRHŒA AND ITS COMPLICATIONS IN THE MALE & FEMALE. By DAVID WATSON, M.B., C.M.

"The best monograph on gonorrhœa in the English language."
Henry Kimpton, 263, High Holborn, London, W.C. —BRIT. MED. JOUR.

BY P. LOCKHART-MUMMERY, F.R.C.S.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT,

AND

DISEASES OF THE RECTUM AND ANUS.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

E. & S. LIVINGSTONE, Medical, Surgical and Scientific Publishers.

JUST PUBLISHED. Crown 8vo. Cloth. 336 pp. 26 Illustrations. Price 9s. net. Postage 6d.

HANDBOOK OF DISEASES OF THE NOSE, THROAT AND EAR. By WM. SMITH SYME, M.D., F.R.F.P.S.Glasg., Extra Academ. Lect. Dis. Nose and Throat, Univ. Glasg.; Surg. Glasg. Nose, Throat, and Ear Hosp., &c., &c.

17, Teviot-place, Edinburgh.

Second Edition

GRAVES' GYNECOLOGY

Thoroughly Revised

"*A new and magnificent volume on Gynecology has emanated from the Harvard School of Medicine, from the pen, and as regards the illustrations in greater part also from the brush, of the professor of gynecology. Both Professor Graves himself and the school are to be heartily congratulated on an achievement which is well worthy of the best traditions of its historic birthplace. ..... The book is freely and handsomely illustrated throughout, mainly from the author's own drawings of his own specimens. Professor Graves is to be envied for his facility and congratulated on his ability as an artist. We again most heartily and unreservedly congratulate Professor Graves.*"—BRITISH MEDICAL JOURNAL.

GYNECOLOGY: MEDICAL AND SURGICAL. By WILLIAM P. GRAVES, M.D., Professor of Gynecology at Harvard Medical School. Octavo of 885 pages, with 491 original illustrations, 100 in colours. Cloth, 36s net.

Sent, Carriage Paid, on Receipt of Price.

SAUNDERS PUBLISHERS

9, Henrietta Street, London, W.C. 2.

AIX-LES-BAINS

SAVOY, FRANCE. 8 hours from PARIS, on the direct route from Paris to Rome. On the border of Lake Bourget.

Successful Treatment of

RHEUMATISM
GOUT SCIATICA
SEQUELÆ OF WAR WOUNDS

Treatment by
Massage while under the Douche.
Thermal Sulphurous Radioactive Waters 117° F.

OPEN ALL THE YEAR.

DIURETIC WATERS — Deux-Reines. Saint-Simon. Massonat.

ZANDER INSTITUTE Physiotherapy.

Springs of **MARLIOZ**, strong sulphurous waters for throat and bronchial affections.

AIX-LES-BAINS is the most beautiful and important CENTRE OF TOURIST ACTIVITY in the FRENCH ALPS (64 different Excursions).

Splendid Climate. High level resort: MONT-REVARD, 5250 feet.

For all further particulars apply to the Comité d'Initiative, Aix-les-Bains.

THE RATIONAL TREATMENT OF
Decalcification and Demineralisation
OF THE ORGANISM.

TUBERCULAR PRETUBERCULAR

Organic Silico-Fluoride of Calcium (produced from the central part of the oyster shell)

OSTREINE

with the addition of Phosphates derived from Cereals.

RACHITIS PHOSPHATURIA

A Natural Combination of Calcium, readily Assimilable, owing to the Presence of Fluor and Silica.

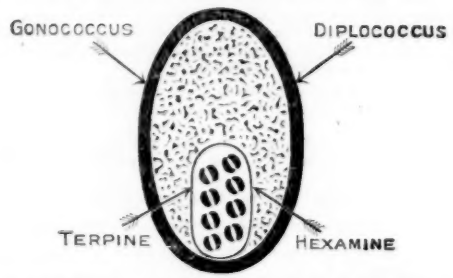
USUAL DOSE: 1 Cachet or Tablet with each meal.

In Boxes of 40 Cachets. " " " Tablets.

BACTERIOTHERAPY
BY THE
GASTRO-INTESTINAL TRACT

ANTIGONOCOCCIC VACCINE
HÉTÉROLYSINE
(OLIVIÉRO)

IN
GLUTENISED CAPSULES



The cultures are obtained by special processes and a vaccine is produced which is

HETEROGENEOUS, HETEROVALENT & POLYVALENT

MODERN PHARMACALS, 48, Mortimer Street, LONDON, W. 1.
LITERATURE ON APPLICATION. 'Phone: MUSEUM 584. Telegrams: "PHARMACALS, WESDO, LONDON."

THE LANCET.

No. 5048. LONDON, SATURDAY, MAY 29, 1920. Vol. CXCVIII.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

GOULSTONIAN LECTURES

on the Principles of Medical Science as Applied to Military Aviation. Delivered before the Royal College of Physicians of London by J. L. BIRLEY, C.B.E., M.B., B.Ch. Oxon., F.R.C.P.Lond. Lecture I. Delivered on March 9th, 1920 1147

ORIGINAL ARTICLES.

Encephalitis Lethargica (Epidemic Encephalitis). By EDWIN BRAMWELL, M.D., F.R.C.P. Edin., F.R.C.P. Lond., F.R.S.E., Physician to the Edinburgh Royal Infirmary; Lecturer on Neurology and Clinical Medicine, Edinburgh University. With a Note on Post-mortem Findings in a Series of Cases of Encephalitis. By JAMES MILLER, M.D., F.R.C.P. Edin., Lecturer on Morbid Anatomy, Edinburgh University.—(*Illustrated*) 1152

The Advantages Afforded by Extension in the Treatment of Diseased Joints. By Sir W. ARBUTHNOT LANE, Bart., M.S., F.R.C.S., Consulting Surgeon, Guy's Hospital, &c.—(*Illustrated*) 1159

A Note on the Clinical Diagnosis of Diphtheria and other Exudations in the Throat. By HARRY DRINKWATER, M.D. Edin., Physician to the Wrexham Fever Hospital.—(*Illustrated*) 1160

Three Cases of Modified Small-pox. By WALTER ALLINGHAM, M.R.C.S., L.R.C.P. Lond., Medical Officer of Health, Orsett, Essex, Rural District Council.—(*Illustrated*) 1162

Full-time Tubal Pregnancy. Cæsarean Salpingectomy: Recovery. By R. ECCLES SMITH, O.B.E., M.B., Ch.B. Leeds, F.R.C.S. Edin., Surgeon to the Surgical Hospital, Barry, Glam. 1163

Medical Progress in China Since the Republic. By WU LIEN TEH, M.A., M.D. Cantab., LL.D., Physician Extraordinary to the President of China.—(*Illustrated*) 1203

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Broncho-pulmonary Spirochætosis (Castellani) Simulating Pulmonary Tuberculosis. By C. LESLIE BROWNE, L.R.C.P., L.R.C.S. 1164

A Case of Hydatidiform Mole in a Multipara aged 51. By H. H. GELLERT, M.B., Ch.B. Edin. 1164

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Otology 1165

Society of Tropical Medicine and Hygiene 1166

Society of Superintendents of Tuberculosis Institutions .. 1168

London Association of the Medical Women's Federation 1168

Bristol Medico-Chirurgical Society 1169

Société de Thérapeutique de Paris 1169

Montpellier: Réunion Obstetricale et Gynécologique 1170

REVIEWS AND NOTICES OF BOOKS.

The Physiology of Vision. With Special Reference to Colour-Blindness. By F. W. Edridge-Green, M.D., F.R.C.S.—The Edridge-Green Card Test for Colour-Blindness. By the same Author 1170

Principles of Human Physiology. Third edition. By Ernest H. Starling, C.M.G., F.R.S. 1171

Child Physiology. By W. M. Feldman, M.B., B.S. Lond. 1171

A Manual of Practical Anatomy. By Thomas Walmsley. Part I. 1172

Occupational Affections of the Skin. Second edition. By R. Prosser White 1172

Lectures on Venereal Diseases. By Leonard Myer, F.R.C.S. 1173

Die Therapie der Haut und venerischen Krankheiten. By Professor Dr. J. Schaeffer 1173

With the 1/1st Lowland Field Ambulance in Gallipoli. By G. H. Edington, M.D., D.Sc., Colonel, A.M.S. (T.F.) 1173

The Work of V.A.D. London No. 1 during the War. Edited by Stanley Unwin .. 1173

Physical Reconstruction and Orthopædics. By Harry E. Stewart, M.D. 1173

British Journal of Experimental Pathology 1174

Tubercle 1174

Paris Médical 1174

LEADING ARTICLES.

THE FUTURE OF THE MEDICAL SERVICES: THE REPORT OF THE CONSULTATIVE COUNCIL 1175

OPIUM, THE TREATY AND THE LEAGUE 1176

THE PROPHYLAXIS OF SHELL SHOCK 1177

ANNOTATIONS.

National Health Insurance Bill: Changes in Benefits and Contributions 1178

Medicine in China 1178

Anomalous Cases of Small-pox 1179

Treatment by Radium 1179

Eye-Gate and Ear-Gate 1180

The Ravages of Measles 1181

Cerebral Softening Simulating Lethargic Encephalitis 1181

Antiscorbutic Orange-juice Powder 1182

Venereal Ulcer 1182

The Post-graduate Movement in New York 1182

The New Rent Bill 1183

SPECIAL ARTICLES.

The Future Provision of Medical and Allied Services. An Interim Report of the Consultative Council for England.—The First Report of the Welsh Consultative Council.—(*Illustrated*) 1183

Tuberculosis 1188

Canada 1189

Paris 1190

Budapest 1190

THE SERVICES.

Royal Naval Medical Service 1191

Royal Army Medical Corps ... 1191

Royal Air Force 1191

India and the Indian Medical Service 1191

The Honours List 1191

Brought to Notice 1191

Foreign Decorations 1192

URBAN VITAL STATISTICS:

Vital Statistics of London during April, 1920 1192

Analysis of Sickness and Mortality Statistics in London during April, 1920 1192

English and Welsh Towns 1193

Scotch Towns 1193

Irish Towns 1193

CORRESPONDENCE.

Helminthic Infections in Relation to Pellagra (Dr. H. M. Woodcock) 1193

Specificity and Evolution in Disease (Dr. O. Polhill Turner) 1196

The Fee for Conducting an Autopsy (Dr. J. W. Rob) 1196

MEDICAL NEWS.

Welsh National School of Medicine: The Chair of Physiology 1151

Donations and Bequests 1158

The Need of Dentists 1162

Limitation of Panel Patients in Aberdeen 1163

Society for Relief of Widows and Orphans of Medical Men 1163

Health Certificates before Marriage 1165

National Council for Combating Venereal Diseases .. 1170

Royal Portsmouth Hospital .. 1183

The British Science Guild 1196

Royal Colleges of Physicians of London and Surgeons of England 1196

Royal College of Surgeons of England: Pass-list 1196

Royal College of Physicians of Edinburgh 1196

Royal College of Surgeons of Edinburgh: Pass-list 1196

University of Manchester 1197

The Voluntary Hospital and the Remuneration of the Staff 1197

Health Exhibition in Belfast 1197

Tuberculosis Society: A Representative Congress ... 1197

Association of Physicians of Great Britain and Ireland 1197

The Medical Defence Union: Increase of Subscription ... 1197

Vital Statistics for Calcutta .. 1197

General Regulation in Austria of Medical Fees 1197

Central Midwives Board 1198

The late Dr. S. R. Savage, of Pretoria 1200

PARLIAMENTARY INTELLIGENCE.

House of Lords: National Health Insurance Bill 1198

House of Commons: Medical Services in the Navy.—Effect of the War on European Populations.—Exports of Morphia.—Improved Conditions of School Children.—Opium Cultivation in India 1198

NOTES, SHORT COMMENTS, &c.

Removal from the Panel: The Tribunal under the National Insurance Acts ... 1204

The Psychogenic Treatment of Apoplexy 1204

Appointments 1201

Vacancies 1201

Births, Marriages, and Deaths 1201

Acknowledgments of Communications received 1201

Medical Diary 1202

Books, &c., received 1202

BALE'S MEDICAL BOOKS.

The Doctor's Manual or Practitioner's Vade Mecum. With which is incorporated "HOW TO CUT THE DRUG BILL." By A. HERBERT HART, M.D., M.S., Clinical Assistant to the London Hospital Venereal Clinic. Fourth or Post-Bellum Edition. Large Post 8vo. 10s. 6d. net; postage 9d.

The Animal Parasites of Man. By H. B. FANTHAM, M.A., J. W. W. STEPHENS, M.D., D.P.H., and F. V. THEOBALD, M.A. With 423 Illustrations. Royal 8vo. 45s. net; postage 9d.

"A marvellous example of the results of industry and erudition."
—*Times Literary Supplement.*

The Industrial Clinic. A Handbook dealing with Health in Work. Edited by Prof. EDGAR L. COLLIS, M.D., M.R.C.P., Talbot Professor of Preventive Medicine in the University of Wales. With 9 Full Page Illustrations. Demy 8vo. 10s. 6d. net; postage 6d. [*Modern Clinic Manuals.*

The Amœbæ Living in Man. By CLIFFORD DOBELL, M.A., F.R.S. With 5 Plates (2 Coloured). Royal 8vo. 7s. 6d. net; postage 6d.

"The author is to be heartily congratulated on this notable work."
—*Journal of Tropical Medicine and Hygiene.*

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W. 1.

ELLIS'S MEDICAL LIBRARY.

(Medical, Surgical, Veterinary, Dental).

SECTION NO. 6. **BOOKS RECOMMENDED.** PLASTIC SURGERY.

PLASTIC SURGERY OF THE FACE.

By **H. D. GILLIES,** C.B.E., F.R.C.S., Major R.A.M.C., Surgical Specialist to the Queen's Hospital, Sidcup; Surgeon in Charge of the Department for Plastic Surgery.

Medium 4to. Cloth. 424 pages. With 844 Illustrations.

Price £3 3s. net.

COPIES (ON APPROVAL IN UNITED KINGDOM) FROM

FREE CATALOGUE. MONTHLY SUPPLEMENTS. PROMPT DELIVERY.

H. R. ELLIS, Bookseller, Exporter & Importer
(from the Oxford University Press),
9, Lovell's Court, Paternoster Row, London, E.C. 4.
(100 yards from St. Paul's Cathedral.)

Cables & Telegrams:— NUBOOQUE, CENT. LONDON.

A REPORT OF THE WORK carried out at the

RADIUM INSTITUTE.

London, from Jan. 1st, 1919, to Dec. 31st, 1919. By A. E. HAYWARD PINCH, F.R.C.S., Medical Superintendent. (Published with the authority of the Committee.) Medical Practitioners may obtain copies of the same, post free, on application to THOMAS A. GARNER, Secretary, 16, Riding House-street, W.1.

ESSAYS ON THE SURGERY OF THE TEMPORAL BONE.

By Sir **CHARLES A. BALLANCE,** K.C.M.G., C.B., M.V.O., M.S., F.R.C.S., Consulting Surgeon to St. Thomas's Hospital, &c.

Illustrated by 125 Plates (40 in Colour) and 120 Figures. In 2 Volumes. Medium 4to. Price 5 guineas.

MACMILLAN & CO.

Price 1s. With Illustrations

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.)

Those interested in the subject should write for his book, which will be sent post free.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." *(This letter may be seen.)*

"Stammering: Cleft Palate Speech: Lisping." 1s. 8d. post free.

Of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

FREDERICKS Uxbridge Road, Hayes, Middlesex.

SANATORIA SPECIALIST.

Also Makers of

MOTOR SHEDS.

Come and see the class of goods we manufacture.

7 ft. × 7 ft. ... ... } Prices upon
8 ft. × 8 ft. ... ... } application.

Revolving Gear, £4 10s. extra.

THE EARLIEST HYGIENIC SHOEMAKERS.

[ESTABLISHED SINCE 1824.]

The instructions of the Profession intelligently carried out.

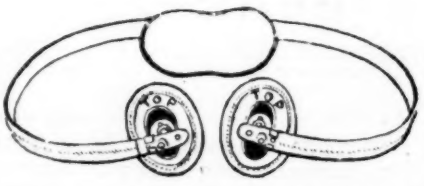
In addition to the Departments for **Ladies and Gentlemen,** special attention is given to provide properly shaped shoes for **Children,** parcels of which can be forwarded on approval to any part of the country. Please send outlines of the feet.

DOWIE & MARSHALL have had great experience in the shoeing treatment of weak ankles and flat feet.

DOWIE & MARSHALL, Ltd., 455, West Strand, Charing Cross, London

G.P.O. Telephone - - - No. 9015 Central.

If you have a difficult case of Hernia—



Send your Patient to be properly fitted with a Patent

BALL-AND-SOCKET TRUSS.

SALMON ODY Ltd.,

7, NEW OXFORD STREET, LONDON, W.C. 1. **Not Obtainable Elsewhere**

Goulstonian Lectures

ON

THE PRINCIPLES OF MEDICAL SCIENCE AS APPLIED TO MILITARY AVIATION.

Delivered before the Royal College of Physicians of London

BY J. L. BIRLEY, C.B.E., M.B., B.CH. OXON., F.R.C.P. LOND.

LECTURE I.

Delivered on March 9th, 1920.

MR. PRESIDENT AND FELLOWS,—I am deeply conscious of, and I desire to thank you for, the honour you have done me in offering me this lectureship; at the same time, I am only too well aware of my limitations for fulfilling the onerous duty involved. Instead of employing these past few years in making original observations and gaining, as one had hoped to gain, some special knowledge in a particular branch of our science, we have been thrown into the rush of war, to be deluged by surprises, confronted with undreamt of situations, and expected at a moment's notice to pronounce expert opinions on subjects concerning which we would sometimes have preferred to confess a profound ignorance. Under these circumstances I felt myself strictly limited in the choice of a subject, and it came therefore as a relief to discover that the subject which I was forced to choose, scattered and diffuse as it is, would not be altogether distasteful to some of you.

It was the fortune of war, indeed the good fortune, which during the later stages of the first great battle of the Somme brought me into contact with our flying services in France; it was similarly good fortune to be allowed to remain with them until victory had been won.

The subject under discussion is, on the face of it, a new one, and I approach it with some diffidence, more especially since other workers in the same field have been tempted into making somewhat sweeping assertions which have failed to stand the test of subsequent investigation. As a matter of fact, the medical aspects of aviation embrace no new discoveries and necessitate no revolutionary doctrines, but rather insist on the proper application of well-recognised scientific principles. The only novelty which can reasonably be claimed for these lectures is that they deal not with the causes and results of disease, but, on the contrary, with the effects produced in large numbers of healthy young men as the result of employment in an unnatural and dangerous occupation. In brief, they attempt to describe the reaction of the normal individual to an abnormal environment.

In this connexion I cannot refrain from remarking on a difficulty which must have confronted many of us. It was an everyday experience that when dealing with sickness or injury the medical officer possessed the complete confidence of his executive colleagues, but when it came to a question of offering advice on matters not directly connected with disease the reverse was the case. It is both easy and popular to criticise this conduct, but it seems to me readily comprehensible. The experienced soldier, not without reason, considered his credentials for knowing "what his men could stand" at least as good as those of his medical colleague. He argued to himself that a doctor was in his element when he had someone ill to attend to, and consequently out of it when dealing with fit men. This criticism had a great deal of truth behind it. We were, to put it frankly, ill-equipped to answer the conundrums with which we were confronted. Trained to concentrate our attention on the lesion and its treatment, we were inclined to pay insufficient attention to the functional disturbances which it evoked, and none at all to the bodily reactions which aim at counteracting its effects. In war, however, function is everything, for in terms of function one measures efficiency. The capacity for mental and physical endurance displayed during the war was a source of universal pride, while to us in particular it provided in addition the stimulus for investigating the compensatory processes by which this endurance was rendered possible. In no field was progress more evident than in the psychological, and it is with the psychology of military aviation that this lecture is mainly concerned.

THE MILITARY DUTIES OF THE FLYING OFFICER.

If we wish to understand the psychology of the pilot and his observer, and to gain their confidence, we must have a clear idea of the work they have to do and the conditions under which they do it. The development of these activities, like the other subjects of these lectures, can best be studied historically.

In the earlier days of the war the aeroplane was used exclusively for purposes of reconnaissance—to report movements behind the enemy's lines and to assist the artillery in the location and, if possible, in the destruction of suitable targets. As the war proceeded reconnaissance was developed chiefly by the use of aerial photography and artillery coöperation by the use of wireless telegraphy. The next advance was to carry by means of bombs an offensive warfare behind the enemy's lines with a view to disorganising his communications, disturbing the productivity of his factories, and undermining his morale. This form of activity gave birth to night-flying. As, however, enemy aircraft were employed on precisely similar duties, retaliatory measures began to develop on both sides. The anti-aircraft gun, though capable of interfering with was powerless to put a stop to aerial activity, and it soon became apparent that this object could only be obtained, supposing it could be obtained at all, by the aid of aircraft itself. In this way arose fighting in the air—i.e., the destruction of aircraft by aircraft—and it was this aspect of aerial warfare which naturally appealed to the public imagination to the exclusion of what always remained the more essential forms of aerial activity. As the war proceeded aerial activity, although becoming greatly intensified owing to the increasing numbers of machines employed, maintained the characters alluded to. One further development, however, took place. This consisted in the active coöperation of aircraft with the infantry within the battle-zone itself. For this purpose aeroplanes were employed at very low altitudes and within easy reach of hostile machine-gun fire to assist bodies of infantry in maintaining contact with one another, and, further, by the use of machine-gun fire and small bombs to harass the enemy in every possible way.

This brief résumé will serve to demonstrate the variety and dissimilarity of tasks with which our flying men were confronted, a point of considerable psychological importance.

ORGANISATION.

As the first Somme battle revealed the immense possibilities of aircraft in war, so it first drew attention to the medical requirements, or perhaps it would be more correct to say to the medical defects, of our flying service. Not only were battle casualties greatly on the increase in proportion to the numbers engaged, but losses from sickness as a result of nervous breakdowns began to reach alarming proportions. Moreover, officers who had previously been sent home for a rest were not coming back to France in the numbers that had been expected, or else, when they did return, exhibited less powers of endurance than they previously possessed.

Up to this time there was practically no medical organisation in the field or at home directed to the particular needs of the flying service. The need for such was, at this time at any rate, almost entirely a psychological one, while the reason for its absence was also, in my opinion, psychological. It was realised, of course, that warfare in the air threw a great and increasing strain on those engaged, but the belief was fostered, inspired partly by hope and partly by the fine qualities of mental discipline engendered by military training, that strain could be overcome and kept at bay by the exercise of will-power for an almost indefinite period. It was difficult to realise that will-power like the rest of one's mental faculties was not immune to exhaustion.

After two years of war officers were still being accepted as pilots and observers on the flimsiest medical examination or even on none at all, while those who were systematically examined were adjudged on standards which were originally laid down from the point of view of the ability of the candidate to march and to shoot from his right shoulder. It accordingly happened that a prospective candidate might

be accepted with a blind left eye or be rejected on account of the possession of flat feet. This anomaly was corrected by the institution of a Central Board for the examination of all candidates for the flying services. That the new standards set up by this hard-worked body gave rise to even greater criticism than those which they replaced will be referred to in a subsequent lecture. Suffice it here to say that such a state of affairs was, to my mind, inevitable.

In the field very little organisation was necessary to meet the requirements. The first step was to obtain suitable medical officers for duty with groups of squadrons, with the main object of acquiring a personal knowledge of all officers under their care; those with previous experience of battalion work, and therefore with knowledge of the psychology of the fighting man, were particularly sought after. It was next necessary to obtain at some convenient base a number of beds reserved for the reception of flying personnel, whose disability appeared to be directly related to the peculiar work on which they were engaged. This hospital unit rapidly became one of the busiest in France, thanks to the tireless industry and enthusiasm displayed in its inception and continuation by the late Dudley Corbett and H. C. Bazett. The most important step, however, was to maintain constant liaison with commanding officers, to make them realise that the science of medicine had a sphere of usefulness beyond that of dealing with the sick and wounded, to convince them that it was a necessary factor in promoting efficiency and maintaining discipline, and having excited their interest to obtain what was absolutely essential for our purpose, their sympathetic coöperation. During the months from August, 1917, to November, 1918, inclusive, close on 2000 flying officers passed through this special hospital unit; of these over 40 per cent. were deemed to be suffering from the fatigue inseparable from active service. In order to interest commanding officers in the medical aspects of aerial warfare they were encouraged not only to visit this unit, but also to send a confidential report on every patient admitted. In this way the large majority of them were stimulated into taking an intelligent interest in the physical and psychical welfare of those under their command, and many by becoming extraordinarily astute psychological observers afforded us valuable assistance. Individual psychological study was possible in the air service to a degree unknown in the infantry; this was so not merely because of the comparatively small numbers involved, but also on account of the high degree of individualism which service flying entails and encourages.

TEMPERAMENT.

A great deal has been written about "the flying temperament" as if it were something sui generis, and it has been suggested, and in some quarters even claimed, that it is possible by medical means alone to discover its presence and lay bare its absence. We all know what we mean by temperament, and yet to define the particular qualities going to make up the temperament necessary for success in any given walk in life is not one which can be lightly undertaken.

A. *The Flying Temperament.*

It has been elsewhere[1] pointed out that the temperament for flying per se was of little importance in the field, since those devoid of it did not, as a rule, reach the active service stage. One can hardly be surprised that a proportion of presumably normal individuals dislike flying, for there is after all a certain feeling of insecurity of tenure in the air which becomes more pronounced during prolonged flights. I understand that the majority of those who since the war have made flights extending over several hours have experienced a definite sense of relief on landing. It is, therefore, doubtful whether we are justified in classifying this particular distaste among those pathological phenomena known as phobias. A curious feature of those cases which have come under my notice has been a feeling of increasing insecurity with increasing altitude. Such individuals remained comparatively comfortable up to one or two thousand feet, but above this height they were overtaken with a consuming dread. One particularly gallant officer vainly attempted to conquer this weakness by covering up his altimeter with his flying cap. There appeared to be no correlation between this "altitude neurosis" and the discomfort experienced when gazing over a precipice or looking down from a high building. There were, however, a few individuals who, greatly to their credit, in spite of an ever-present sense of insecurity in the air, not only learnt to fly, but so mastered their feelings that they became successful military pilots, gaining promotion in the service and even winning decorations for gallantry.

The attempt to determine by physical and psychological examination the possession, or otherwise, by an individual of the temperament for flight is one with which I must confess to be little in sympathy as being one beyond our reach. Even an individual's keenness to fly may be misleading owing to the lack of correspondence between anticipation and realisation. Flying aptitude should rather be compared with any other form of activity requiring perfect coöperation between eye and hand. Such coöperation is best exemplified, and incidentally may be greatly developed, by the playing of games. "Flying," as Dr. Henry Head has very correctly said, "introduces no elements which are not in evidence in riding a motor-bicycle, game-shooting, cricket, or golf."[2] But two individuals may be equally good at the same game or the same sport, and yet their methods may have nothing in common; we say their "styles" differ. So too their temperaments may differ widely and yet the end-result be the same. At the risk of being accused of levity I would in all seriousness ask what possible resemblance could be traced in the physical or temperamental qualities possessed respectively by Dr. W. G. Grace and Prince Ranjitsinhji? Just as the latter could break all the rules of batting with impunity, so can some pilots break at least many of the rules of flying without at the same time breaking their necks. To postulate one temperament and one only for flying, or for any other form of coördinated activity, surely implies a too mechanical and stereotyped habit of mind. We cannot at present identify the potential cricketer or mathematician except by watching how the former catches a ball and how the latter does sums, and the same principles would seem also to apply to the art of flying.

Nevertheless, the attempt to define and isolate this elusive quality, the flying temperament, has been productive of a vast amount of pioneer work in the countries at war, more, perhaps, in France, Italy, and America than here. Large numbers of experimental values have been obtained and correlated with the subsequent success or failure of the candidate.[3] For the so-called "kinæsthetic ability," for example, no less than 32 values were ascertained by the French authorities for each candidate, all of them connected with the general function of equilibration. These values, however, were not actual measurements of efficiency, but merely determinations of certain reactions assumed to be indicative of efficiency. It cannot be said that in this field, at any rate, the results were convincing; the equilibration tests employed in America, for instance, gave the same correlation with success as a pilot as did the candidate's ability to drive a motor-car. Similar correlations were sought for by statistical and routine analyses of character and intelligence, but again with indecisive results.

Psychometric tests.—The most promising line of approach appeared to be that afforded by the psychometric tests, which, under the direction of Camus and Nepper, achieved considerable fame in the French flying service. These tests were based on the assumption that "aviation demands the special quality of rapid decision which is measurable by the candidate's psychomotor reactions." While not denying that rapidity of decision is most desirable, I would emphasise what has been repeatedly pointed out to me by numerous flying friends (some of whom, it is true, failed at these reactions) that, whereas a clear judgment and correct rather than quick decision will make all the difference in a tight corner, as in any other activity, flying under peaceful conditions in the absence of untoward events is a sedate procedure, bordering at times on the monotonous. They also point out that the bodily movements necessary for controlling an aeroplane are methodical and deliberate, and not to be compared in speed with those necessary for playing a game such as racquets.

Psychometric reactions are divisible into two main groups—simple and complex or choice. In the former the stimuli are of the most elementary character, plain visual, auditory, or tactile impressions. These reactions are recorded by means of the D'Arsonval chronometer. The average normal values are as follows: Visual 19/100ths second, auditory 14/100ths, and tactile 14/100ths. A satisfactory reaction also entails but little variation between the individual responses in the whole series. The responses are slowed in conditions of exhaustion and after illness, a fact which was corroborated on our own pilots. Although I have no statistical evidence that these simple reaction times are an indication of flying aptitude, I understand that the results obtained on some of the most distinguished and successful fighting pilots in the French air service strongly supported such a view. But even so, there is still the possibility that these tests afford an indication not so much of aptitude for flight as of ability to fight a gun in the air, an operation which especially calls for great rapidity and dexterity of movement. Of the three reactions, that to auditory stimuli would seem the most delicate.

In the complex or choice reaction the subject is not limited to one movement, but has to select between two or more according to which stimulation occurs. Theoretically this would appear to give a better indication of the quality of rapid decision, in which complex psychical processes must necessarily be involved. From an investigation carried out on these lines it certainly appears that the correlation with

flying aptitude increases up to a point with the complexity of the reaction.[4]

B. *The Fighting Temperament.*

In war the aeroplane has to be looked upon as a device whereby the mobility of the individual is so increased that he is able, directly or indirectly, to inflict losses on the enemy in the enemy's territory. The military pilot must therefore possess the combatant spirit. This is not necessarily associated with the aptitude for flight. The most skilful pilot might be, and sometimes was, valueless as a fighting force; while, conversely, lack of technical skill was very far from being equivalent to lack of military value; indeed, several of those pilots, the memory of whose conspicuously successful gallantry will endure, could not be considered first-class fliers, while one, at least, was definitely indifferent. Hence what chiefly mattered in the field was the fighting temperament. This is a theme, however, which cannot profitably be dealt with here.

PERIODS OF EFFECTIVENESS.

Confining our attention now to an officer's effectiveness as a fighting force, and not to his skill as a pilot, from the purely technical point of view, it was found that the degree of effectiveness varied greatly at different states of his military career. These stages may conveniently be compared to the seasons of the year.

The Period of Inexperience.

This is the flying officer's spring, and is chiefly occupied in learning to fly, an aspect of which I have no personal knowledge. Its importance is obvious, and it provides a fruitful field for psychological study. But this stage does not end when the individual reaches the fighting line as a fully qualified pilot, for he is still without practical experience of war. During the next two months he passes through the most critical stage of his career, gaining experience only too often at the cost of his life. To realise this it is only necessary to consider what may be called the military age of a flying officer, his birthday being the day of his arrival in the fighting line. If, for example, we wish to determine the average military age in any squadron or group of squadrons we have to determine the total number of weeks served by each officer since his arrival in the squadron and divide the total by the number of officers in the squadron or group. Similarly, we can determine the average military age of those who become casualties as the result of battle, accidents, sickness, &c. The following figures are only approximate, but for our present purposes sufficiently accurate.

On the Western front the average military age of casualties due to battle and accidents combined was for the whole of 1917, 2 months and 18 days; for the five winter months the military age was as much as 3 months 4 days, but for the summer (fighting) months 2 months and 11 days. Or, to put the matter differently, of the battle casualties sustained during the fighting months of 1917, 35·05 per cent. occurred among officers who had been less than one month with their squadrons, 25·60 per cent. among those who had been less than two, and 12·32 per cent. among those who had been less than three. The corresponding figures for the whole of 1918 up to the armistice were as follows: 26·43 per cent. under one month, 27·97 under two months, and 14·97 under three months. That is to say, during 1917 and 1918 roughly 70 per cent. of the casualties sustained in battle and in accidents occurred among officers who had completed less than three months of active service. These figures must not be taken too literally. First, it must be remembered that officers did not remain on an average much more than six months in the field before being sent home for a rest. Secondly, there were always larger numbers of "young" officers in a squadron than "old" ones, and therefore the incidence of casualties among the former is not as heavy as the figures quoted would make it appear. Remembering, too, that casualties had nearly always to be replaced by the inexperienced, a period of heavy casualties by lowering the average military age of a unit tended to increase its vulnerability.

But altogether apart from figures it was the unanimous opinion of all unit commanders that a pilot's, especially a fighting pilot's, first two months of active service constituted the critical period, during which he was more likely to become a casualty himself than to inflict casualties on the enemy. The period of inexperience then corresponds to the period of minimal military effectiveness and of maximal vulnerability, and particular stress has been laid on it, not so much because it contrasts so vividly with the ensuing period, but because unless it is appreciated it is impossible to understand the psychological atmosphere of a flying squadron as a whole.

The Period of Experience.

Having escaped the dangers surrounding his first two months, the flying officer enters upon the summer of his career, a period of confidence and self-assurance, of initiative and dash, of skill and wise discrimination, of success and achievement. His vulnerability is now relatively slight and his military effectiveness at its zenith. The length of this stage is naturally variable, depending on the constitution of the individual, the amount and character of his work, and the success he achieves in doing it. The inspiration born of success especially helps to prolong it. Nevertheless, it is absolutely certain that it cannot last indefinitely; autumn, or the period of reaction, must supervene sooner or later. And it will be just here that the ability to make accurate psychological observations and deductions, whether in a unit commander or his medical colleague, is of such vital importance. For if the successful officer can be spared from experiencing in too great a measure the mental conflict which characterises the period of stress, if he can be rested at the crucial moment, he will in a comparatively short time again be fit to return to the fighting line, not to embark again on those critical two months of danger and inexperience, but to jump with one bound into a second period of confidence and efficiency. The appearance of one such individual might even rally a broken and discouraged squadron.

The Period of Stress.

The mental strain inseparable from warfare in the air presents the same picture, both in its development and its end-effects, as that which occurs in other combatant branches of the service; it is only the colouring which is different. It will be worth while briefly to consider a few practical points peculiar to the flying service which modified the development of the condition of stress. It was a curious feature about a fighting squadron, comprising only eighteen flying officers, that it could be made or marred by two or three individuals, especially if they were in the position of leaders. These few set the pace, often, it is true, to the detriment of those who attempted to follow. If, now, one of these individuals were permitted to remain when the period of stress had become definitely established, and his efficiency was on the wane, the results might be disastrous. His leadership in the air became less effective, the offensive spirit dwindled, and the new arrivals in the unit obtained an entirely false impression of the standard of work expected from them. A leader, therefore, whose effectiveness was lowered by fatigue could as easily mar a squadron as one in the prime of his career could make it. Nevertheless, his commanding officer was often reluctant to replace one who had served him so long and so well; often enough he had already acquired a reputation, to shake which something more was demanded than a falling-off in achievement, too often but generously regarded as a temporary run of ill-luck.

Secondly, the type of flying largely determined the onset of stress. In artillery squadrons, where the mind was fully occupied in registering targets, signalling the progress of operations, &c., and pilot and observer enjoyed each other's companionship, complete efficiency was retained, in spite of the dangerous character of the work, up to eight, nine, or ten months, or even over a year. In fighting units, however, where the whole object was to destroy the enemy in the air or to take part in the infantry battle, the effective period was much less.

Thirdly, the irregular hours of sleep during the summer, with the nights disturbed by the aerial activity of the enemy, were an important influence in hastening the onset of stress. The question of sleep was particularly difficult to arrange in squadrons employed exclusively by night.

Again, all flying is in a sense fatiguing, in that it demands attention, but the fatigue experienced is in inverse proportion to the skill of the pilot and the efficiency of the aeroplane. The importance of the latter factor in war is very real. The psychological effect of the appearance on one or the other side of a machine superior to anything that can be pitted against it was frequently in evidence on the Western front. In the same way flying over enemy territory with an engine the reliability of which was open to question was an operation peculiarly adapted to the rapid acquisition of a state of anxiety.

The question of altitude will be dealt with in a subsequent lecture. Here it is only necessary to say that flying at altitudes over 13,000 to 15,000 feet was a factor which definitely accelerated the onset of nervous fatigue.

The most important psychological factor, however, peculiar to the flying service was its individualism. Flying in formation diminished but certainly never abolished this outstanding feature. A flying officer relied essentially on his own skill, his own courage, his own resolution, and his own sense of honour and of duty. He lacked and most certainly missed the inspiration born of responsibility to his men and that intimate comradeship in danger which for the infantry officer served as sources of support and encouragement.[5]

THE MENTAL REACTION.*

It is not proposed to discuss this subject in any spirit of controversy, but to regard it as a perfectly normal reaction to a very abnormal environment. That this reaction is now comprehensible is largely due to the advance in our psychological knowledge which was literally forced upon us by the war.

It will be recalled that man's earlier interpretation of the universe, and therefore his attitude towards disease, was essentially an animistic one, and all disease was ascribed to spiritual agencies. This interpretation was gradually replaced by explanations of a materialistic kind, so that the production of disease was ascribed in an increasing majority of instances to material agents, and only where no such explanation seemed possible were spiritual agencies still invoked to account for its presence. The concept of the activity involved by these latter agencies was, however, very different from what we now understand by "mind." It was the impetus derived from the study of the phenomena of hypnotism, introduced from the East, which led modern thought to the recognition of the *mental* factor in medicine. In the course of these studies it was found that hypnotism might offer the means of reaching experience "which had been so completely buried that by no effort of the will could it be recalled."[6] It was left to Freud to demonstrate that these buried memories could be recalled without the aid of hypnotism by means of what he called "free association," the necessary clues being usually provided by dreams.[7] By the knowledge derived from his analyses he was able to put forward for the first time a definite scheme of the unconscious region of the mind and its relation to the conscious. It accordingly became possible to correlate events in the sphere of the conscious with events in the sphere of the unconscious, and so to adopt in the sphere of the mental the principle of determinism which had so long assisted the progress of physical science. It is the special value of Freud's work that the student of mind can now believe that every psychical event has its psychical antecedent, and so believing will have the patience and courage to probe deeply into the history of his patients.

Partly independently, but partly because of Freud's work, the great importance of the instinctive or emotional aspects of mind was becoming increasingly recognised before the war, and the emotional factor in neurosis was coming to be regarded as the expression of some instinctive tendency which had to be repressed on account of its incompatibility with social standards. It is well known that Freud was led to the conclusion that the mental experience which tended to be so suppressed was nearly always connected with the sexual instinct, and the exaggerated importance attributed to this factor, more especially by his disciples, not unnaturally rendered his views unacceptable to the general body of medical opinion both in this country and in France. The war, however, while accentuating the truth of Freud's main assumptions, has made it possible to discard the dominating importance of sex, and to substitute in its place the still more fundamental instinct of self-preservation.

In dealing, therefore, with the reaction inevitable in war we are dealing first and foremost with the defence mechanisms developed by the individual for countering his natural instinct of self-preservation. When these mechanisms are weakened by shock or prolonged strain, and the instinctive tendency comes into conflict with social standards, a condition of neurosis results. Among the instinctive or affective aspects of mind which particularly concern us the emotion of fear naturally takes pride of place.

The most frequent mode of reaction to actual danger in man consists in an extremely complex reflex action which so adjusts the bodily functions as to render the individual better fitted to meet and overcome the danger. In this, which we may call the physiological reaction, the emotion of fear takes no part and fails to appear; we say a man is "cool in the presence of danger." A second mode of reaction consists in the replacement of the emotion of fear by the emotion belonging to the instinct of aggression—namely, the emotion of anger—and we say a man "sees red." In both modes of reaction, however, although fear is not felt, we may, for many cogent reasons, confidently assume that it is potentially present, but in a state of suppression. It may, however, and indeed does, appear on the surface when the mechanism of suppression is lowered by shock or strain, or when higher control is weakened, as, for example, in the waking state.

These considerations lead us to the comprehension of the two earliest symptoms of the mental stress induced by war, first the nightmare, and secondly the occurrence of actual fear or of apprehension under circumstances in which these had not been previously experienced. These symptoms the sufferer keeps to himself, and so begins an entirely new process, the conscious repression of fear and apprehension, which are regarded with shame, and as much as possible evaded. The slang nomenclature to which the war gave birth, especially the substitution for the word "fear" of quasi-humorous expressions, is in itself evidence of the desire of the individual to shun the consciousness of fear. This conscious suppression of fear only serves, however, to increase the strain and fatigue which has led to the failure of its unconscious suppression, and a state of persistent anxiety gradually develops, characterised particularly by loss of sleep and various disturbances of physical health.

"Wind Up": A Clinical Picture.

The clinical picture presented by an officer whose mechanisms of defence have given way under the strain of war is characteristic. In its earlier stages, however, it is usually entirely subjective, and its presence can therefore only be discovered by a medical officer whose personality compels the sufferer to come to him in confidence and disclose his troubles. The tired pilot may under these circumstances complain of having lost some of his keenness; he has recently been dissatisfied with his work, and for the first time has begun to wonder when it will be his turn to go home; he has already been out over six months. He has not been quite sure of himself in the air lately, and to make certain that his confidence for flying is unshaken he has attempted to reassure himself by proving his ability to execute various manœuvres dangerously close to the ground; the result has not been a success. Perhaps it is all due to the mess having been unsatisfactory; he thinks the tone has gone down; anyhow, he has been off his food. He has only just recently recognised that he prefers to leave the mess after meals and lie down and read a book in his own room. His sleep is less sound than it used to be; he takes a long time to get off and has lately been dreaming. At first the dreams were not unpleasant, merely that he was making bad landings and getting laughed at. Then they began to worry him; he would dream of long-forgotten experiences in the trenches, or that he was "brought down" and taken prisoner; and he hardly likes to mention it, but once he was "brought down" in flames, and woke up in terror shaking all over. His administrative work on the ground has been a labour instead of a pleasant duty; he has had a row with his sergeant, and he feels the "C.O." is losing faith in him. The new pilots from England are not altogether satisfactory; his responsibilities weigh heavily on him, and he thinks that the death of a member of his flight was avoidable, and perhaps was his fault. He admits that he is conscious of having to force himself into the air, and is inclined when leading a patrol not to "go for" things which he would have done without hesitation a fortnight ago. Perhaps flying has affected his heart; he has had palpitations lately, has been short of breath on exertion and easily tired. Anyhow, the whole thing is a complete mystery to him, although he is sure it is only temporary and the doctor will give him something to put him right. And so, seeking for trivial causes in explanation of a fundamental change, reluctant to acknowledge what he dreads—what, moreover, he has publicly condemned in others—equivocating, pursuing false hopes, and evading the real issues, this eminently brave man will frequently conclude with the appeal, "Don't tell me its 'wind up.'"

It is at this stage that the medical officer can obtain results of incalculable value to the individual, both as a patient and a soldier. The condition is essentially mental, and treatment must be directed to the mind. By assuring him that there is no cause for shame or reproach but rather the reverse, and by inducing him to give up the process of voluntary repression, he can so prepare the soil that during the necessary rest which he will insist on the normal mechanism of defence will be rebuilt and the individual restored to perfect health and efficiency. Moreover, having once experienced the condition and made to understand it fully and frankly, the officer will in future be enabled to understand its appearance and recognise its onset in his companions.

When the condition is allowed to progress unrecognised the state of anxiety increases. The more stout-hearted the sufferer the longer he disregards Nature's danger signals. He becomes irritable, unsociable, morose, losing his inspiring personality, and adopting a black outlook on things in general. Although he feels tired, he is excitable and restless; unable to sit down to read or write, he must needs always be pottering about the aerodrome looking at the weather. To keep himself going he smokes to excess, or may even come to rely on alcohol. If he meets an enemy

* In this section I have drawn freely from two sources: (i.) two contributions by Dr. W. H. R. Rivers—(*a*) Mind and Medicine, a lecture delivered on April 4th, 1919, and published by Longmans, Green and Co., and (*b*) "Wind Up," an article written for the use of R.A.F. medical officers; (ii.) an unpublished paper entitled "Flying Fatigue and Efficiency," written in France in August, 1917, by my late friend and colleague, Dudley Corbett.

formation on patrol he either turns tail or attacks recklessly, too tired to think about manœuvring. In the last stage the noise of the engines on the aerodrome distresses him; he cannot bear to see a machine take off or land, and he even hates to hear "shop" talked. Sooner or later he must give in. The career as a war pilot of an individual who reaches this extreme stage is irrevocably finished.

Prophylaxis and Cure.

It would seem at first sight an easy matter entirely to prevent the development of the anxiety state by anticipating it. In practice, however, such a course was well-nigh impossible. Some of the reasons why this was so can be inferred from what has already been said; they were not within the control of any one man, but were rather the inevitable consequence of the way in which the war developed. It was, however, recognised that the principle of short shifts was applicable here as in all other communities where industrial fatigue was to be expected, and in this way it was found possible perceptibly to reduce the *permanent* wastage from this cause, and materially to shorten the interval between an officer's admission to hospital and his return to the fighting line.

During the closing months of the campaign, when the drain on the man-power of this country had become very severe, the anxiety neurosis became a more prominent and far more difficult problem than ever before, although in a somewhat modified form. The type of manhood that was being pressed into the service inevitably deteriorated. In these individuals, and essentially as a result of the lack of that mental and bodily education which more than anything else assists the formation of character and the gradual development of the psychological mechanisms of defence, the powers of resistance were insufficient. The majority of them mentally immature, many of them physically so, unaccustomed to rely on themselves, looking rather for things to be made easy for them, lacking initiative, and naturally apprehensive, through no fault of their own they were ill-equipped for the duties for which they had been hurriedly trained. Moreover, the qualities requisite for a successful fighting pilot are as relatively rare as they are splendid, and it was particularly in fighting machines that the great numerical expansion of the air service had taken place. These individuals, then, never having acquired that unconscious suppression of fear which in their more fortunate comrades of tougher calibre had come into existence in early boyhood, broke down early, and had to be eliminated as quickly as possible. For the condition of anxiety which so rapidly developed in these misfits I have elsewhere proposed to substitute for the term "stress" that of "distress."

The line of treatment to be adopted in the states of strain imposed by war follows closely from what has been said as to the causative factors; mental and bodily calm have to be restored. It is first necessary to eliminate the affective state due to the disturbing emotion of shame, and, secondly, to persuade the sufferer to discard the process of voluntary suppression. Two other therapeutic agencies may be mentioned. The first, that of self-knowledge, by which, among other things, the sufferer is brought to understand elements of conscious experience which are being misinterpreted; the second and more important, the agency of self-reliance, by which he is persuaded frankly to face his troubles instead of running away from them. In other words, we have first to assist the patient suffering from stress to understand his troubles, and then to appeal to his common sense and his character; it is easy to understand why, in the condition of distress, the results of mental therapy must be disappointing.

THE PHYSICAL REACTION.

The disturbances evoked by abnormal psychical states in the physical sphere may be profound, and the recognition of this fact, forced upon us by the war, seems likely to play a prominent part in influencing the future progress of medicine. There need be no difficulty in understanding this if we remember the profound physical effects invoked by emotional states, amounting in animals to complete muscular paralysis.

The incidence of these disorders varied greatly. Many officers, after a long and arduous spell of work, though conscious of an altered state of mind, showed little manifest disturbance of physical function. One of the earliest signs of stress was revealed in a loss of weight, amounting in some cases to over a stone in two or three weeks. Clearly metabolism, as in exophthalmic goitre, was tuned to a high level, and it has also been shown that the oxygen consumption per minute was often above normal in these cases.[9] In a large number of individuals, however, in whom a state of anxiety had become definitely established, all or some of the physical changes shortly to be mentioned were found to exist. These disturbances were all characterised by a loss of central nervous control, resulting in conditions the main feature of which was overaction.[1] It was our practice in France, a practice originating in the supposition that repeated exposures to high altitudes might induce changes in the circulatory and respiratory systems, to investigate these systems with particular care. It soon became apparent, however, that the disturbances which were frequently found could not fairly be attributed to such exposures alone, since they were common to the majority of individuals suffering from mental strain, in many of whom high altitudes could not have been an ætiological factor.

In the circulatory system a rapid pulse, throbbing cardiac action, a pulse-rate and blood pressure both unduly susceptible to changes in posture and slight exertion, and a large pulse pressure were the rule. In such cases, even when resting, the heart appeared to be working at full pressure with no reserve to draw upon when an extra effort was demanded of it. A short walk along the road was sufficient to produce physical distress.

In the respiratory system the shallow rapid breathing, small tidal air, diminution in vital capacity, and high ventilation per minute all pointed to an excessive irritability of the respiratory centre, and consequent diminution of respiratory reserve power.[10]

In the neuro-muscular system loss of tone of the abdominal wall, as evidenced by stomach-splashing and diminution of expiratory force, tremors of the hands and tongue, and disturbances of static equilibrium were all indicative of an escape from nervous control.

The increased output of adrenalin with the production of hyperglycæmia,[11] which has been shown to occur in various emotional states, probably results from excessive stimulation of the sympathetic system.[12] In the same way may be explained the remarkably acute and at times alarming digestive disturbances, simulating the picture of duodenal ulcer, which occurred so frequently, and also the abnormal action of the vagus on the heart[13] and lungs.[14]

It is impossible to escape the conviction that in a large proportion of these cases this condition was essentially mental (emotional) in origin. This view in no way conflicts with the theory of toxæmia favoured by Lewis to account for the similar condition in the foot soldier[13]; on the contrary, following the influenza epidemic of 1918 numerous officers were found to be suffering from a condition clinically indistinguishable, save for the absence of anxiety, from that which has been briefly described.

The emotional factor in the production of physical disturbances is well illustrated by a series of pilots who had been concussed as a result of a "crash," with loss of consciousness. Of 24 cases one-half, several of whom could remember nothing about the accident, seemed little affected; the response of the pulse to change of posture and to exercise was normal, there was no loss of abdominal tone, no tremor, and a comparative absence of symptoms. All returned to duty after a short rest and did excellent work. The other half all had vivid memories of their accidents and were definitely "on edge"; their pulse-rates were high and unstable, abdominal tone was poor, tremors were prominent, and headache persistent. All were evacuated to England and none of them returned.

SUMMARY.

The experiences which have been studied serve to emphasise the predominating influence of the higher nervous centres in man. The lower centres in their turn transmit these influences to every organ in the body, and we realise as perhaps never before that our bodily health and bodily activities are at the mercy, so to speak, of events taking place in our cerebral cortex.

References.—1. Birley: Air Medical Invest. Com. Reports No. 4, 1918. 2. Head: A.M.I.C. Reports, No. 7, 1919. 3. Spearman: Report (unpublished) to A.M.I.C. on Psychol. Exam. of French and American Aviators. 4. Stamm: Report (unpublished) to A.M.I.C. 5. See also Rivers: Mental Hygiene, ii., No. 4, 1918. 6. Rivers: Mind and Medicine, Longmans, Green and Co., 1919. 7. Freud: Selected Papers, translated by Brill, New York, 1909. 8. Rivers: "Wind Up" (unpublished). 9. Briscoe: Observations on the Respiration of Airmen, 1918. 10. Flack: A.M.I.C. Reports, No. 3, 1918. 11. Kooy: Brain, xlii., pt. 3, 214, 1919. 12. Cannon: Bodily Changes in Pain, Hunger, Fear, and Rage, New York, 1915. 13. Med. Res. Com. Special Report Series, No. 8, 1917. 14. Haldane, Meakins, and Priestley: Journ. Physiol., liii., 433, 1919.

WELSH NATIONAL SCHOOL OF MEDICINE: THE CHAIR OF PHYSIOLOGY.—Dr. T. Graham Brown, who since his release from military service has been carrying on his work as lecturer on experimental physiology at Manchester, has been appointed Professor of Physiology in the Welsh National School of Medicine, to the chair which fell vacant on the resignation of Professor J. Berry Haycraft. Professor Brown will be in charge of the new physiological laboratories recently erected at Cardiff.

ENCEPHALITIS LETHARGICA

(EPIDEMIC ENCEPHALITIS).

BY EDWIN BRAMWELL, M.D., F.R.C.P. EDIN., F.R.C.P. LOND., F.R.S.E.,

PHYSICIAN TO THE EDINBURGH ROYAL INFIRMARY; LECTURER ON NEUROLOGY AND CLINICAL MEDICINE, EDINBURGH UNIVERSITY.

With a Note on

POST-MORTEM FINDINGS IN A SERIES OF CASES OF ENCEPHALITIS.

BY JAMES MILLER, M.D., F.R.C.P. EDIN.,

LECTURER ON MORBID ANATOMY, EDINBURGH UNIVERSITY.

THERE is an especial fascination to the clinician attaching to a disorder which presents no single distinctive feature, which may simulate, or be simulated by, a large number of other affections, and in the recognition of which cytological, bacteriological, and chemical procedures have hitherto failed to afford any positive assistance. I may remind you that in the spring of 1917 von Economo[5] directed attention to a "new disease,"* cases of which were occurring in Vienna and its neighbourhood; that in the early spring of 1918 Netter[18] observed cases with a corresponding symptomatology in Paris; that in April of the same year Wilfred Harris[9] and Arthur J. Hall[7] simultaneously reported the presence in England of cases which presented similar features; and that Bassoe[1] was the first to report cases of the disease in the United States in March, 1919. No doubt you will remember the general interest evoked in the public press by the suggestion that these cases might be attributable to the *Bacillus botulinus*—a suggestion which was before long proved to be incorrect. Crookshank,[4] Melland,[16] Kinnier Wilson,[24] Farquhar Buzzard,[3] S. P. James,[10] James McIntosh,[12] A. S. MacNalty,[13] R. J. Reece,[20] and Marinesco,[15] among others in this country, have contributed to the literature; numerous isolated case records have been reported, and the subject has been discussed at several sectional meetings of the Royal Society of Medicine, while in October, 1918, a Blue-book, entitled "Encephalitis Lethargica—an Enquiry into an Obscure Disease," was issued by the Local Government Board. Nevertheless. I am satisfied that cases of encephalitis lethargica are only exceptionally recognised, and this is not surprising for several reasons. In the first place, the clinical pictures presented, even by typical cases, are very varied; again, a variety of different titles were employed with which to designate the earlier case reports; while, further, during 1918, when the majority of the contributions to the literature of encephalitis lethargica were appearing in the medical journals, practitioners had but little opportunity or leisure for literary study. This being so, I feel that no apology is called for as an introduction to the following remarks, which are based upon a considerable experience of the disease.

Evolution of Conception of Encephalitis.

As a preface to subsequent considerations, it is interesting to trace what I may term the steps in evolution, both eliminative and constructive, which have led up to the present-day pathological and clinical conceptions of non-suppurative encephalitis.

The current view regarding encephalitis in the early "forties" of last century may be illustrated by reference to a remarkable work, "The Diseases and Derangements of the Nervous System," published in 1841 by Marshall Hall, a name to be remembered as one of the most distinguished in the history of British neurology. This authority, under the term "encephalitis," included not only meningitis, abscess of the brain, and, indeed, all inflammatory processes within the cranium, but in addition the cerebral softenings, the relation of which to interference with the blood-supply was at that time not recognised. Although Marshall Hall enumerates a number of clinical features which are met with as a sequel to the various processes just mentioned, the latter were not differentiated pathologically, and a diagnosis during life was consequently impossible.

Three names stand pre-eminent in relation to the process of elimination which has led up to the present-day conception. Thus Virchow, who in 1846 published his famous work on embolism and thrombosis, may be said to have paved the way to the discovery that the great majority of the softenings of the brain substance, which had hitherto been attributed to an inflammatory process, were in reality a consequence of vascular occlusion. Again, Quincke, by the introduction of lumbar puncture in 1891, opened up a new field in the study of the cerebro-spinal fluid, and thereby effected a great advance in the diagnosis and differential diagnosis of meningitis; while Sir William Macewen, who in 1893 produced his well-known work upon "The Pyogenic Diseases of the Nervous System," has probably done more than any other observer to further our knowledge of suppurative encephalitis or abscess of the brain.

Constructive evolution dates from the early "eighties" of last century. Four groups of non-suppurative encephalitis have, I think I may say, been recognised by clinicians in the past, and to these I shall now briefly allude. Wernicke, in 1881, recorded three cases of encephalitis which were characterised clinically by an ophthalmoplegia of more or less sudden onset and pathologically by an acute hæmorrhagic inflammation of the grey matter of the floor of the third and fourth ventricles and in the neighbourhood of the aqueduct of Sylvius. Alcohol appeared to play a definite rôle in relation to these cases. Since the symptoms were purely motor, and since the process was an inflammatory one which affected essentially the motor nuclei in the upper part of the brain stem, Wernicke compared the condition which is now often known by his name to acute poliomyelitis, and termed it superior hæmorrhagic polioencephalitis. The adoption of this nomenclature was perhaps unfortunate, since the two disorders, although they present an homologous pathological anatomy, are ætiologically and clinically distinct. Wernicke's superior polioencephalitis has been, in the past at least, a condition of extreme rarity. Strümpell, in 1884, advanced the view that the cerebral palsies of childhood are for the most part dependent upon an encephalitis of the cortex of the brain, similar in its nature to the poliomyelitis of the spinal cord. Admitting the truth of the contention advanced by his critics that an inflammation limited to the cortex would not account for a widespread involvement of the white matter of the hemispheres with porencephaly, such as is observed in some of these cases, Strümpell abandoned the term polioencephalitis, which he had originally employed in this connexion, and in his later writings speaks of the encephalitis of childhood. There is reason for believing that the encephalitis of Strümpell may be due to a specific organism, the nature of which has not, however, as yet been determined. The same observer appears to have been the first to describe an encephalitis with a cerebral localisation in the adult. Medin, the Swedish physician, who at the Berlin meeting of the International Medical Congress in 1890 reported an outbreak of poliomyelitis in Stockholm, demonstrated that cerebral palsies are far from uncommon in epidemic poliomyelitis. The dependence of these symptoms upon an encephalitis, which must obviously be due to the same specific virus as poliomyelitis, has since been proved anatomically by Wickman and others. The occasional occurrence of an encephalitis as a sequel to one or other of the infective fevers is repeatedly referred to in the literature. It would seem, to judge by the number of infective maladies in the course of which an encephalitis has been noted, that a great variety of different organisms are capable of producing an inflammation of the brain, although the combination of circumstances which permits of this must be one of extreme rarity.

I shall now direct your attention to encephalitis lethargica†—the type of encephalitis which has been so prevalent of late—with particular reference to the clinical features these cases present and the many problems in diagnosis to which they give rise. I find

* F. G. Crookshank[4a] has adduced evidence from the older medical literature, which suggests that epidemics of encephalitis have occurred from time to time during the past 450 years.

† The desirability of retaining the term "encephalitis lethargica," which was originally introduced by Economo[5] and adopted by the Local Government Board,[13] has been called in question. Kinnier Wilson[24] objects to the term on the ground that it is illegitimate to apply a clinical adjective to a pathological substantive. A. J. Hall advocates "sleeping palsy" for popular use, since it is less cumbersome and at the same time expressive, distinctive, and non-committal. Exception may, indeed, be taken to the adjective "lethargica," since lethargy, although a characteristic feature, is not perhaps a constant accompaniment of the pathological process. There are reasons for believing that lethargy may be a focal mid-brain manifestation, and it is quite possible that further pathological observation may demonstrate that the effects of the causal virus are at times confined to parts other than the brain stem. This being so, it would appear to the writer to be inexpedient in the present state of knowledge to attempt to supersede the current nomenclature by a clinical appellation which in the near future may perhaps be replaced with advantage by a more appropriate ætiological terminology.

that I have notes of 57 cases seen since March, 1918, in which I have made a definite diagnosis of encephalitis lethargica or epidemic encephalitis. An opportunity of corroborating the diagnosis after death was, it is true, only afforded on three occasions, a circumstance accounted for by the fact that the great majority of the cases were seen in consulting practice, only four patients dying in hospital. The series above referred to includes, however, no case in which the nature of the condition appeared to be open to reasonable doubt.

The Characteristic Clinical Picture.

The *mode of onset* varies. As a rule, the symptoms develop gradually, and even in very severe cases it may be a few days or even a week or two before they become pronounced. Amongst the prominent earliest symptoms I have observed are the following, viz.: Abnormal drowsiness, with a tendency to fall asleep when reading or working; diplopia; defective vision, consequent upon paresis of accommodation; a feeling of light-headedness; some loss of emotional control; pronounced constipation; difficulty in passing urine; and severe peripheral pains simulating a localised neuritis. In other cases no such prodromal period is observed. The patient may go to bed feeling in his usual health and wake next morning presenting well-marked manifestations of the disease. Occasionally the onset is apoplectiform. Thus, three of my patients fell suddenly to the ground unconscious. A rise of temperature, usually accompanied by headache, an increase in the state of apathy, and sometimes vomiting, marks the true onset of the illness. Exceptionally restlessness and, it may be, mental excitement are observed in place of the characteristic lethargy.

A recognition of the various modes of onset is necessary in relation to early diagnosis. I would recognise four groups of cases in this connexion:—

(*a*) An asthenic or somnolent type, to which the great majority belong.

(*b*) A meningitic type, to which A. J. Hall [7] especially has drawn attention.

(*c*) An apoplectiform type.

(*d*) A neuralgic type which is characterised by very severe pain referred to one or more extremities or to the head.

A typical case of encephalitis lethargica presents a striking physiognomy.

The patient usually lies on his back, the eyes half closed, the face may be flushed and covered with beads of perspiration (in three cases unilateral sweating and in two a conjunctivitis was observed). Often the patient will lie motionless for hours at a time without making any attempt to alter his position. He makes no complaint, he appears to take no interest in his surroundings, and yet there may be only a moderate degree of somnolence. Again, in other cases the patient, though oblivious to his surroundings, is in a restless state; he mutters to himself or talks aloud. He is evidently disorientated, for his delirium refers to his daily occupation. Thus, one of my patients, a sergeant, was constantly drilling his men, another, a lawyer, giving instructions to his clerks, and a third, a business man, carrying on animated conversations by telephone. The lips are seen to move, and yet the face is often strikingly immobile and expressionless. There may, however, be some tremor and occasionally spasmodic twitchings of the facial muscles. From time to time the patient fumbles with the bedclothes, and an irregular tremor or spasmodic jerkings of the limbs may then be noticeable. The general appearance may, indeed, closely resemble that of a case of delirium tremens. Although the patient may appear to be in a state of semi-stupor, he will often, when addressed, awake from his somnolent condition or break off in the middle of his delirium and reply intelligently to questions put to him, although his responses are slow, his intonation monotonous, and his articulation often somewhat indistinct. In two cases a complete disorientation, both as regards time and space, was noted. Pains in the limbs, when any attempt is made to move the patient, are not uncommonly complained of. Variations in the lethargic state, from a slight degree of somnolence to actual coma in severe cases, may be observed from time to time. Paradoxical as it may seem, sleeplessness is not infrequent. When the stupor is pronounced loss of control over the sphincters and difficulty in swallowing are observed.

Upon examination the temperature will generally be found to be slightly elevated if the patient is seen within the first few days of his illness (in my experience the temperature rarely rises above 101 or 102° unless towards the termination of a fatal case). The temperature usually falls in a few days, although it may remain elevated for two or three weeks, after which it is commonly subnormal. Exceptionally a slight rise of temperature, persisting for a day or two, is observed at a later date. The pulse-rate is somewhat accelerated and not infrequently out of proportion to the febrile disturbance. The tongue is usually very dry, and it may be coated. A moderate degree of neck rigidity, together with Kernig's sign, may be present, though both these phenomena are exceptional. In two or three cases I have observed a diffuse erythema, and in one case herpes labialis.

Focal nervous symptoms referable to the ocular muscles are of very frequent occurrence. Thus, bilateral ptosis, a divergent strabismus, some defect of the ocular movements, notably a paresis of the muscles supplied by the third nerves, nystagmus, inequality of the pupils, which may be widely dilated and usually respond sluggishly to light, and paresis of the ciliary muscles, with consequent impairment of vision due to defective accommodation, are often observed. Not infrequently, too, there is some paresis of the facial muscles, as a rule, though not always, bilateral, and amounting sometimes to a complete paralysis. Generalised weakness of the limbs, more accurately described as a profound asthenia than a paralysis, is the rule. Sometimes, however, a definite mono- or hemi-paresis is present. Katatonia is a common symptom when the somnolence is pronounced. The knee-jerks show no constant alteration; they may be exaggerated, while occasionally they are absent. The plantar reflexes are usually of the flexor type, though exceptionally an extensor response can be elicited. Changes in the fundus oculi are seldom met with, although in several cases I have seen engorgement of the veins, and in two cases in which the diagnosis was not absolutely certain, and which are not included in this series, an optic neuritis was present. I have met with no case in which there was a history of a fit. One patient exhibited pronounced maniacal excitement. Upon lumbar puncture a clear cerebro-spinal fluid, which is not under pressure, but which may contain a slight excess of cellular elements of the lymphocyte type, is usually obtained. In two cases of probable encephalitis lethargica, not included in this series, altered blood was withdrawn on lumbar puncture. As to the blood, my observations are in accord with those of Vaidya and of William Boyd [9a] that a leucocytosis is exceptional and, when present, of slight degree, while in four of my cases in which differential counts were made no definite abnormality was detected. In two cases sugar and in one case albumin and blood were present in the urine. Enlargement of the spleen was observed in no instance. Catarrhal symptoms referable to the respiratory tract are, in my experience, unusual; they certainly do not occupy a prominent place in the clinical picture.

Salient Clinical Features.

The salient clinical features of the common type of encephalitis lethargica may be conveniently classed in three groups as follows:—

(1) Febrile disturbance which is met with almost invariably in the initial stages. Although as a rule slight in degree and consequently apt to escape detection, this symptom is important in relation to diagnosis. Accompanying the fever certain general symptoms, such as headache and, less commonly, giddiness and vomiting, are often met with during the earlier days of the illness.

(2) A state of progressive somnolence, apathy, and lethargy, from which the affection derives its appropriate designation. This symptom, which is present in the great majority of cases, is associated with slow mental action, want of initiative, and when pronounced, as a rule, with an occupational delirium.

(3) Symptoms referable to focal disturbances in the function of the nervous system, a consequence of the structural changes produced by the morbid process. These vary according to the region of the nervous system in which the lesion is situated or most pronounced. The frequency with which paresis of the ocular muscles, notably of those supplied by the third nerves (ptosis, strabismus, defective movements of the eyes, nystagmus, unequal and sluggish pupils, and defective accommodation), and paresis of the face are met with is explained by the fact that in the majority of cases the mesencephalon and pons are the special regions selected by the process.

Before proceeding to refer to exceptional types and to allude to certain problems of differential diagnosis I would emphasise two points. In the first place, let me again remind you of the various modes of onset to which I have referred and the early premonitory symptoms met with in certain cases; while, secondly, it is necessary that you should realise that, although the focal nervous symptoms commonly make their appearance in the initial stages of the illness, they sometimes continue to develop for two or three weeks; in other words, the local lesion may be progressive.

Diagnosis.

The above description is applicable to pronounced cases of what may be termed the characteristic mesencephalic type of the disease. All cases, however, do not present such a symptomatology; indeed, I know of no affection which manifests such a multiplicity of clinical pictures, and, consequently, offers so many difficulties in diagnosis. The symptomatology varies according to the mode of onset, the preponderance of general or focal manifestations, and the region of the brain affected by the lesion. Since encephalitis lethargica may closely resemble a number of different conditions, since no single symptom can be regarded as pathognomonic, and since pathological methods afford no help of a positive kind in its recognition, diagnosis by exclusion necessarily plays a prominent rôle, and the physician's general experience and clinical acumen may consequently be severely taxed.

As an aid to diagnosis it is convenient, as suggested by MacNalty[18] in his excellent article, to recognise a number of clinical types, among which the following are illustrated by cases which have come under my observation.

(1) The common or mesencephalic type, to which the great majority of cases belong. This type is characterised, as has been mentioned, by febrile disturbance and by a state of apathy, somnolence, general lethargy, or even stupor, associated with paresis of the ocular and facial musculature. The diagnosis here presents little difficulty.

(2) A type in which the lethargy, somnolence, and sometimes symptoms of meningeal infection are pronounced, while focal nervous symptoms are either inconspicuous or absent. Cases of this kind are by no means infrequent. They are apt to be mistaken for a variety of other conditions, among which I would especially mention the following, which I have known to give rise to difficulty in diagnosis, viz.: cerebro-spinal fever, tuberculous meningitis, influenza, typhoid fever, cerebral arterio-sclerosis, and uræmia.

(3) Cases which present striking focal symptoms referable to the mesencephalon (ophthalmoplegia, facial paralysis, &c.), though the initial febrile disturbance has been so slight and evanescent that it has escaped notice, and the somnolence and lethargy are inconspicuous and overshadowed by the focal manifestations. In three cases of the kind which I have met with a diagnosis of intracranial tumour had been previously advanced by a competent observer. It is, indeed, very probable, as Nonne has suggested, that some of the reported instances of supposed intracranial neoplasm, in which the growth of the tumour had apparently become arrested, have been cases of encephalitis.

(4) An abortive type, illustrated by one of my cases, in which the symptoms, never pronounced, pass off more or less completely in the course of two or three weeks.

(5) A type which closely resembles paralysis agitans. The similarity which some cases of encephalitis lethargica present to paralysis agitans has been emphasised by Farquhar Buzzard.[3] Several such cases have come under my notice. The resemblance was particularly striking in the case of one patient, in whom the expressionless face, the monotonous voice, attitude and gait so closely resembled Parkinson's disease that, had no history of the illness been available, it would have been difficult to differentiate between the two conditions. In another case, a rhythmic tremor confined to one arm presented features indistinguishable from that of paralysis agitans, while the immobility of the face emphasised the similarity. Here, again, a history of a febrile onset with diplopia, together with the subsequent course of the illness, placed the diagnosis beyond question. No doubt the phenomena met with in this type of the disease are to be explained by implication of the red nucleus or rubro-spinal tract.

(6) Cerebellar ataxia was a striking feature in one case in which the symptoms suggested the possibility of disseminated sclerosis, an alternative diagnosis which in two other instances was only dismissed after full consideration of all the facts. In a second case in which recovery was eventually complete, the association of cerebellar symptoms, with somewhat severe headache and vomiting, raised the question of a tumour in this region of the brain.

(7) Progressive focal symptoms referable to the motor nuclei of the lower cranial nerves in the medulla, and unaccompanied by any general manifestations, were observed in one case in which the diagnosis between tumour and encephalitis remained doubtful until eventually determined by post-mortem examination. In distinguishing between tumour and encephalitis I would in passing remind you that the difficulty is accentuated by the fact that neoplasms situated in the brain stem are often unaccompanied by indications of increased intracranial pressure (headache, vomiting, and optic neuritis), while, further, the focal nervous symptoms in encephalitis lethargica may be progressive.

(8) A cerebral localisation was observed in three cases; in two of these hemiplegic symptoms, in the third a monoplegia, were, in my opinion, dependent upon an encephalitis. The diagnosis in two of these cases was based on the fact that there was a history of a definite febrile onset with ocular palsies, while in none of the three were there indications pointing to any other factor which might account for the paralysis. Recovery was complete in all, a fact which afforded corroborative evidence as to their nature.

When one remembers that encephalitis lethargica may commence with the suddenness of an apoplexy, as I have personally seen on three occasions, the difficulty in differentiating cases of the kind from cerebral hæmorrhage or occlusion of the cerebral vessels is at once apparent. The absence of signs of cardio-vascular disease and the exclusion of syphilis are matters of importance in this connexion, while the rarity of hæmorrhage into a glioma which has previously given rise to no symptoms renders such a possibility unlikely. Farquhar Buzzard[3] has described cases with hæmorrhage on the surface of the brain. Attention has been drawn to the fact that emotional disturbance is not infrequently observed in cases of encephalitis lethargica. In the absence of fever or of certain indications of an organic process an erroneous diagnosis of functional disease can be understood. I made this mistake in one case in which the temperature, which was normal at the time of my examination, rose two days later; the patient died within a week from symptoms which appeared to be undoubtedly due to an encephalitis.

The above remarks will serve to indicate the protean symptomatology of encephalitis lethargica and at the same time to illustrate some of the numerous difficulties which may arise in the diagnosis of this disease. A case may, indeed, present very different features, and consequently raise very different diagnostic problems, according as it is seen during the prodromal stage, in the febrile period, or at a later date when the general symptoms have largely passed off. In the great majority of the cases I have seen encephalitis lethargica had not been previously suspected. Time and again a practitioner, when asking me to see a patient, has told me that he was quite at a loss as to the diagnosis, since the case I was to see presented features he had never previously met with.

Pathological Features.

Anatomical observation demonstrates that the affection under discussion is dependent upon an encephalitis which shows a special, though not invariable, predilection for the brain stem. Since Dr. James Miller will review the morbid anatomy of the disease and narrate his personal observations, I do not propose to refer to this aspect of the subject. At the same time I should like in passing to make a brief reference to the correlation of the morbid anatomy and symptomatic features. Let me draw your attention more particularly in this connexion to the infiltration of the tissues, and [particularly to the infiltration of the walls of the blood-vessels in the affected region with cells of the lymphocyte type, to the œdema of the brain substance, to the small hæmorrhages which are occasionally observed, and to the neuroglial proliferation which is met with here and there.

The histological characters of the lesion indicate its infective nature and afford an adequate explanation of the associated febrile disturbance, while its distribution and anatomical features account for the frequently bilateral, though often asymmetrical, and usually incomplete, character of the pareses, the occasional variation in the intensity of the symptoms, and the fact that although in some cases the patient makes a complete recovery in others some permanent disability persists. The circumstance that the anatomical changes are confined to the mesencephalon and pons, or are, at any rate, usually more intense in these regions, is only what might be expected in view of the focal nervous symptoms which are most commonly met with.

The paresis of the oculo-motor, of the facial, and, it may be, of other cranial nerves, is evidently due to involvement either of their respective nuclei or of their nerve fibres as they traverse the substance of the brain. Nystagmus, which is so frequent, may be accounted for by interference with the function of the direct nerve-supply to the ocular muscles or to implication of the posterior longitudinal bundle. The not infrequent mask-like face and the tremor, which is sometimes met with, are doubtless to be explained by interference with the function of the red nucleus or rubro-spinal tract. Again, the cerebellar ataxia observed in two of my cases may be accounted for by implication of the cerebellar peduncles or the cerebellum itself, while the general asthenia may be explained by involvement of the motor nuclei in the spinal cord (?). It may be that the pains in the limbs and the tenderness of the muscles sometimes complained of are dependent upon changes in the peripheral nerves, although no pathological observations have so far been recorded in proof of this suggestion. Babinski's sign when present, and exaggeration of the knee-jerks are obviously a consequence of interference with the efferent cortico-spinal tracts.

The mode of production of the lethargic state is less apparent.

Since headache is rarely severe and vomiting, when it occurs, is a transient symptom, since optic neuritis is seldom, if ever, met with, and since the cerebro-spinal fluid is not under pressure, it would seem that the state of lethargy is probably not dependent upon a general increase of intracranial pressure—a conclusion which is supported by post-mortem evidence. Again, a study of the literature would seem to indicate that generalised œdema of the brain is not a pronounced or constant feature. The question consequently arises, May the lethargic state possibly be explained by the focal lesion in the brain stem? The optic thalamus, as is well known, constitutes a receptive centre for all afferent stimuli, and the view has been advocated by MacNalty[13] that the lethargic state may be due to an interruption of the afferent stimuli passing to the thalamus. This hypothesis is an attractive one. The circumstances that in both sleeping sickness and basal syphilis perivascular infiltration is a prominent feature, and that in the former drowsiness is a constant, in the latter a not infrequent, symptom, are, I think, suggestive in this connexion. Further, I have seen more than one case in which I diagnosed an encephalitis of the cerebrum in which drowsiness was not, at any rate, a striking feature.

The specific cause of encephalitis is as yet unknown.

Von Wiesner,[23] working in association with von Economo, affirmed in 1917 that he had discovered a diplostreptococcus to which he attributed specific properties. This author's contentions have, however, been criticised by Kinnier Wilson[24] and others, and his deductions have not been accepted as conclusive. The careful bacteriological observations of McIntosh[12] were of a negative character. Marinesco,[15] and da Fano and Ingleby[6] have described intracellular bodies which may possibly be of an organismal nature, but their observations demand further corroboration. James Miller investigated bacteriologically the cerebro-spinal fluid, blood, fæces, urine, and pharyngeal secretion in four of my cases, with a negative result in so far as he found no pathogenic organisms. Animal experiments carried out by McIntosh[12] and others have been of a negative kind. Recently, however, Strauss, Loewe and Hirshfeld[21] have affirmed that they have succeeded in producing an encephalitis experimentally. It has been suggested that the causal organism may obtain access by the nasal mucous membrane. One of my cases was of special interest in this connexion, for the encephalitis developed while the patient was in hospital a few days after the removal of a nasal polypus. This man, who stated that he had had a purulent discharge from the nose for some time previously, was, it is interesting to note, proved by Dr. Miller to be a meningococcal carrier.

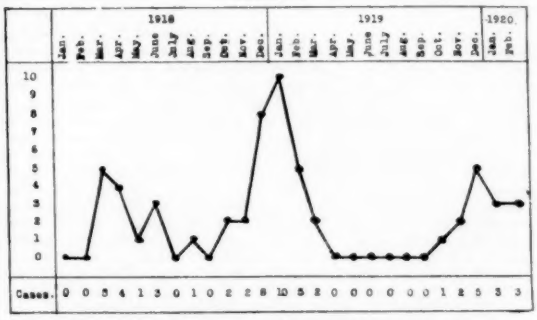
General Ætiological Considerations.

Although no cases of encephalitis lethargica have, so far as I am aware, been hitherto reported from Scotland, my experience suggests that the disease has probably been as prevalent north of the Tweed as in England and Wales. This statement is supported by figures extracted from the mortality returns from Scotland for the first three months of 1919, which Dr. J. C. Dunlop, the Superintendent of Statistics, has kindly placed at my disposal.

According to these figures, "The total number of deaths certified as due to encephalitis during the first quarter of the year 1919 was 58; in the corresponding quarter of 1918 the number was 11; in that of 1917, 14; in 1916, 20; and in 1915, 9." While it is to be remembered that a number of different conditions are included under the term "encephalitis," the figures are at least significant. In 17 of the 57 cases I have met with the patients were living in Edinburgh when the first symptom appeared; while, with four exceptions, the others were residing in a town. Two patients were attacked while on board ship; one, a soldier, was in camp; while one patient was living in a somewhat isolated farmhouse in the country. This experience is of interest, since R. J. Reece,[20] from an analysis of the cases of encephalitis lethargica occurring in England and Wales during the first quarter of 1919, during which period notification was compulsory, finds the proportion of urban cases to cases occurring in rural districts in terms of the population 9·4 to 4·9.

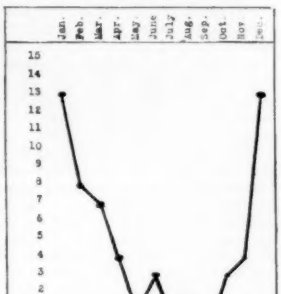
The sexes appear to be about equally liable. Thus, 29 of my patients were males, 28 females; of the latter, 14 were married. The average age of the males at the time of onset was 43, that of the females 35. The youngest patient in the series was 17, the oldest 75. Reece's statistics, however, show that a number of cases have been notified in children and even in infants. Although Batten and Still[2] described four cases of "epidemic stupor in children" so long ago as May, 1918, there appears to be good reason for believing that encephalitis lethargica is very rare in early childhood. Since 41 of my patients were seen in consulting practice, 10 in civil, and 6 in military hospital practice, it would seem that encephalitis lethargica is at least as common among the middle as among the lower classes. The majority of the patients I have seen had been apparently in good health previously; Bassoe,[1] however, states that nearly all his patients had been in a more or less run-down condition prior to the onset. Instances of more than one case in a family, though very unusual, have been reported by Harris,[9] Farquhar Buzzard, and MacNalty,[14] while Reece[20] has met with a case of a nurse who contracted the illness while attending a patient suffering from the disease. My experience indicates that syphilis, alcohol, and trauma appear to play no part in the causation of encephalitis lethargica.

CHART I.


1918
1919
1920
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Dec.
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Dec.
Jan. Feb.
10 9 8 7 6 5 4 3 2 1 0
Cases. 0 0 5 4 1 3 0 1 0 2 2 8 10 5 2 0 0 0 0 0 0 1 2 5 3 3

Date of onset in 57 cases of encephalitis lethargica.

CHART II.



Month of onset in 57 cases of encephalitis lethargica.

Seasonal Incidence.

Dr. S. P. James,[10] in discussing the epidemiology of encephalitis lethargica with reference to the earlier cases observed in the spring of 1918, states: "Most of the cases reported occurred during the seven weeks between the 16th March and 4th May, and, according to the figures, the disease reached its maximum prevalence somewhat slowly, maintaining its prevalence for a comparatively brief period, and gradually declining." This authority is of opinion that the numbers of cases at that time reported were less an index of the seasonal prevalence of a new disease than they were the index of the rise and decline of activity in discovering and reporting cases of an old one. Since the above remarks were made no evidence, so far as I am aware, has been published which either supports or confutes the question of a seasonal incidence in relation to this disease. My own experience, although I admit the number of cases (57) is perhaps too small to justify definite conclusions, affords, I think, suggestive evidence in

this connexion. I would draw attention to the following points which are illustrated in the accompanying figure. Firstly, in 5 of my cases the symptoms developed during March, 1918. Secondly, I met with but few cases which developed during the summer months of 1918. Thirdly, in no less than 23 cases the illness commenced during December, 1918, and January and February, 1919. Fourthly, I did not meet with a single case in which the date of onset was between April and September, 1919, although, it is true, Dr. Byrom Bramwell observed 3 cases during this period. Fifthly, during the past three months I have observed 11 cases. These figures seem to indicate that there is a tendency for encephalitis lethargica to occur during the colder months of the year.

Botulism, Poliomyelitis, and Influenza.

When the earlier cases of encephalitis lethargica were reported in this country the suggestion was advanced that the condition might be botulism. I am indebted for my knowledge of this condition to Dickson's monograph.

The term botulism is applied to a type of food poisoning which results from the ingestion of sausages, tinned beans, and other articles of diet contaminated with the *Bacillus botulinus*. Outbreaks of this type of food poisoning have been reported from time to time for many years past in various parts of Germany and Austria-Hungary, as also in Denmark, America, and elsewhere. A group of cases was, indeed, described in England in 1860. The symptoms of botulism evidently bear a close resemblance to those of encephalitis lethargica. Thus, in both ophthalmoplegia, general muscular feebleness, defective salivary secretion, constipation, retention of urine, and difficulty in swallowing are common features. On the other hand, botulism is preceded by gastro-intestinal symptoms, there is no febrile disturbance, the cases occur in groups, and their origin can be traced to a food product, while the *Bacillus botulinus* of van Ermengem is, it is affirmed, readily detected in the stools.

Acute poliomyelitis is another disorder which presents points of similarity to encephalitis lethargica, and it has been suggested that the latter disease may be due to a modification of the virus which is responsible for the former.

The two affections resemble each other in that both are dependent upon an infective process, and in both the causative agent attacks the central nervous system; while, further, the sporadic manner in which cases of both disorders crop up throughout the country is very similar. There are, however, strong arguments which are opposed to the view that the resemblance is more than superficial. Thus, I have met with no cases of encephalitis lethargica which presented a localised flaccid palsy such as one meets with in poliomyelitis. Again, when some years ago poliomyelitis was comparatively frequent throughout the country cases of encephalitis lethargica were not observed. Further, according to Reece,[20] poliomyelitis showed no increase throughout England and Wales in the first three months of 1919, though encephalitis lethargica was prevalent. Again, the age incidence is different, poliomyelitis being essentially a disease of children and young adults, while encephalitis lethargica is much more frequent in adult age. Lastly, poliomyelitis occurs especially in the late summer and autumn, while the evidence I have adduced suggests that encephalitis lethargica is met with during the colder months of the year. I might mention other points of difference, but those I have noted are, I think, sufficient to show that the two affections are in many respects dissimilar.

Influenza has of late been rife throughout the country, and the question arises whether the disease under consideration may be due to the virus of influenza, and if this is not the case whether there is any relationship between the two conditions.

It is noteworthy in this connexion that a number of cases of encephalitis were recorded by Leichtenstern [11] and other German writers at the time of, and subsequent to, the great influenza epidemic of 1889-90, and that about the same time a peculiar disease termed "Nona,"[1] which was characterised by pronounced drowsiness, was very prevalent in Austria and Northern Italy. Nauwerck,[17] in 1893, discovered the Pfeiffer bacillus in the brain of a fatal case of encephalitis, and Cantani, three years later, succeeded in producing an encephalitis experimentally in rabbits by injecting a dead culture of the influenza organism. These facts are very suggestive, and Oppenheim and Cassirer,[19] in their monograph upon encephalitis published in 1907, describe an influenzal type of encephalitis which, to judge from their description, is so very similar as to be almost indistinguishable from encephalitis lethargica. That an encephalitis may occur in the course of influenza just as it does very exceptionally in the course of a great variety of infective disorders is highly probable, but the available facts do not, in my opinion, justify the conclusion that epidemic encephalitis, which is almost certainly due to a specific infection, is dependent upon the same virus as influenza. The following observations are of interest in this relation. Firstly, in no single instance among the cases of encephalitis I have met with, in which the patient was living in a private house, were there cases of influenza in the family. Secondly, I have observed no case of encephalitis in which there was evidence of infection from person to person. Thirdly, with a few (? two or three) possible exceptions, in no instance was the illness ushered in by catarrhal symptoms, prostrating frontal headache, or severe pain in the back and limbs such as are recognised to be common clinical features in many influenza epidemics. Fourthly, with very few exceptions, a history of a recent attack of influenza was not forthcoming. Fifthly, during the past three months, while there has been comparatively little influenza in Edinburgh or its neighbourhood, cases of encephalitis have not been infrequent. Finally, the circumstance that two infective disorders are epidemic at the same time is no proof that they are dependent upon the same infection. It may well be that common predisposing factors exist which, by lowering the general resistance, determine their simultaneous incidence.

Prognosis.

The mortality in encephalitis lethargica varies considerably, to judge by the recorded experience of different observers.

Thus, 6 cases of 11 reported by Economo, 7 of Netter's 15 cases, 2 of Wilson's 13 cases, and none of Hall's [8] 16 cases died, while 9 of the 57 cases I have observed terminated fatally. The mortality among 126 cases collected by the Local Government Board in 1918 was 20 per cent.; while of the 61 cases observed in the Winnipeg epidemic more than a third died. According to Netter, death may be due to an extension of the encephalitis to the medulla, to pneumonia secondary to paralysis of the vagus or glosso-laryngeal, or to general wasting complicated by bedsores. The ages at death of the seven patients included in my series were as follows: 17, 18, 24, 27, 32, 42, 45, 47, and 60. Five of my patients died between the eighteenth and twenty-second day after the onset of symptoms, one patient dying on the seventh day, another during the fourth week. In this connexion it is of interest to note that the average duration of the illness in the 25 fatal cases collected by the Local Government Board was 21 days, the shortest being 6, the longest 49 days.

My experience does not justify me in formulating any very definite conclusions in relation to prognosis. The circumstance that the three patients in whom the onset was apoplectiform made a good recovery, as did all the patients (4) in whom pronounced meningitic symptoms were a prominent feature in the early stages, is of interest, but may be explained by coincidence. In three of my nine fatal cases, all of which presented a mesencephalic localisation, the general symptoms were pronounced and the focal manifestations comparatively insignificant. If the patient survives the first three weeks of his illness the probabilities are all in favour of recovery. A high temperature, pronounced and deepening stupor, with accompanying dysphagia, and loss of sphincter control are symptoms of serious moment, though not necessarily indicative of a fatal termination.

Improvement is almost always slow in those cases which eventually recover. The patient may remain for weeks or even months in a state of semi-stupor. On the other hand, abortive cases are met with, and are very possibly much more frequent than my experience suggests, in which recovery is practically complete after two or three weeks. Sometimes the general phenomena pass off in a few weeks, leaving merely focal symptoms, which may be very persistent. Complete, or practically complete, recovery was the rule in the majority of the cases I have met with. In several, however, such symptoms as general weakness, slow mental action, and defective concentration, want of initiative, giddiness, defective vision, sluggish pupils, and ocular pareses with diplopia still persist and will probably prove to be permanent. Hall [8] states that recovery was complete and absolute in seven of his cases; practically complete in six cases, some slight trace of illness being left behind; while three cases, after six months, were still far from recovery. I am inclined to think from my experience that the longer the state of somnolence or stupor persists the more likely are the focal nerve symptoms to be permanent. Buzzard [8a] and Greenfield point out that some time after the patient has recovered from the original illness a relapse characterised by involuntary movements may occur. I have observed two instances of the kind.

Treatment.

No therapeutic means have so far been proved to have an undoubtedly beneficial effect upon the course of the disease. A specific remedy has yet to be discovered.

Obstinate constipation is the rule in the early stages, and the use of calomel and other purgatives has been advocated for its relief. I am inclined, too, to think that I have seen improvement in the general lethargic state as a sequel to a loose movement of the bowels. Hexamin in doses of 10 gr. four-hourly was administered in most of the cases I have seen during the first days of the illness, but whether any definite beneficial result was thereby effected I am not prepared to say. Three cases which were under my care in hospital for a period of several weeks afforded opportunity for observing the effects of remedies. Since in sleeping sickness and syphilis of the cerebral vessels a state of somnolence or stupor is observed, and since both these affections are characterised pathologically by a perivascular infiltration, the possibility that iodides or arsenic might prove beneficial suggested itself. Anticipations were, however, not fulfilled, for these drugs, given in full doses, produced no definite improvement. Netter[18a] states that he has seen disastrous results follow the use of neosalvarsan, while he has seen no beneficial effect produced by antimony. Strychnine administered hypodermically in increasing doses up to a twelfth of a grain appeared to me to be of undoubted benefit in more than one case in which the state of somnolence was unduly prolonged. In one case I was rather inclined to think that quinine was of some service. Netter[18a] is of opinion that he has seen benefit follow the production of a local abscess by the injection of 1 or 2 cm. of turpentine into the thigh.

FIG. 1.

Large hæmorrhage in the substance of the cerebellum near the surface. Numerous minute hæmorrhages.

FIG. 2.

Section of mesencephalon close to surface, showing how in encephalitis a meningeal vessel acquires the sheath of inflammatory cells only after penetrating the brain substance.

Note on Post-mortem Findings.

The material forming the basis of the pathological inquiry consisted of five fatal cases at the Edinburgh City Hospital and Royal Infirmary.

Morbid anatomy.—As McIntosh observes,‡ as a rule the autopsies in encephalitis cases are negative; in other words, no macroscopic changes sufficient to account for death are present. In one of the cases which died in the City Hospital in March, 1919, there was a well-marked purulent bronchitis and broncho-pneumonia, but as similar appearances were found in cases dying of "influenza" about that time no great stress could be laid upon the observation. In another case, which was under the charge of Dr. Chalmers Watson, a surface hæmorrhage was observed in the cerebellum measuring ½ inch across, with extravasation of blood under the pia arachnoid at the base of the brain. (Fig. 1.) A similar case is recorded by McIntosh, so that in cases of so-called meningeal hæmorrhage the possibility must be borne in mind that one is dealing with encephalitis lethargica. In all the five cases the surface vessels of the brain were injected, and on section the grey matter of the brain, cerebellum, and cord were unusually dark. There was some excess of cerebro-spinal fluid at the base of the brain. This fluid was clear and there was no exudate or opacity about the meninges. With the exception of the large hæmorrhage and some smaller ones in the neighbourhood in the case already mentioned, no extravasations were found in the brain substance, although a dilated vessel often gave the appearance of such. In one of the cases, a cyst, the size of a walnut, was present at the tip of the left temporo-sphenoidal lobe.

Microscopic appearances.—In each case the chief changes were met with in the pons and neighbouring portions of the mid-brain. In one instance the changes extended into the cervical cord, but the cerebellum (with the exception of the case already mentioned) and the cerebral cortex were relatively free. In relation to the distribution of the disease in the central nervous system the question arises as to what is to be regarded as the most characteristic lesion. In my experience little reliance can be placed upon the chromatolytic changes in this respect. The ravages of post-mortem change and the frequent coincident toxic effects on the ganglion cells render chromatolysis as a criterion for the extent of the disease most unreliable. Œdema, again, although a striking change in certain situations, is often ill-defined and spreads beyond the area of brain associated with clinical symptoms. A much more sure guide to the actual degree of irritation is the perivascular infiltration. This change, although not an indication of such profound and permanent alteration as the proliferation of the neuroglia or hæmorrhage, is probably the best guide to the extent of the affected nervous tissue.

Changes in the nerve cells.—As already stated, the disturbances in the Nissl spindles and nuclei of the nerve cells are, in view of concomitant post-mortem and toxic changes, neither striking nor uniform. They certainly occur, as is evidenced by the loss of staining of the Nissl bodies and pale staining of the nucleus (although the nucleolus, as a rule, stains well), but the more advanced changes of disappearance or extrusion of the nucleus seldom occur. Moreover, these changes may not be met with in very striking degree in the cells of nuclei of nerves which are clinically affected. These degenerative changes in nerve cells are widely distributed. They occur not only in the mid-brain nuclei but in the grey matter of the cord and cerebellum. Marinesco, describing two cases of the disease,§ lays special stress upon changes in the Purkinje cells of the cerebellum. He speaks of them being profound. Da Fano and Ingleby‖ also refer to nerve cell changes of a chromatolytic nature as being severe and widespread. In my series of cases no such striking changes were seen. I agree with McIntosh (loc. cit.) when he states that "in no instance was there that complete absence or destruction of the ganglion cells which occurs in the spinal cord in poliomyelitis."

Perivascular infiltration.—Certainly the most arresting microscopic change is the presence in large numbers of round cells in the perivascular lymph sheath of the vessels which have entered the brain substance. In my experience the vessels of the meninges are not affected in this way. Indeed, it is quite striking to observe the sudden appearance of the casing of cells as the vessel passes from the pia arachnoid into the cerebral tissue. (Fig. 2.) Outside, even in

‡ Reports to the Local Government Board, New Series, No. 121.

§ Ibid.

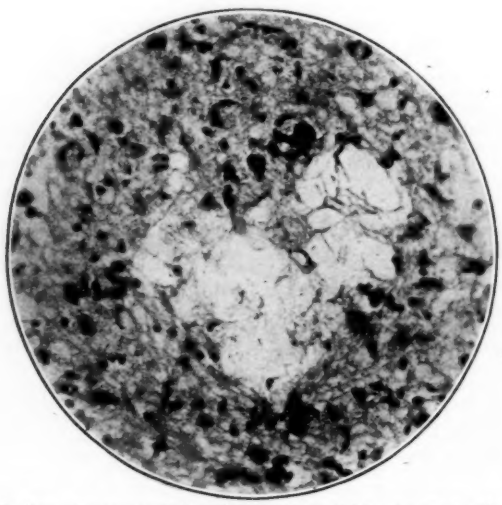
‖ Proceedings of the Royal Society of Medicine, 1919, vol. xii., Section of Pathology, p. 42.

sulci and depressions, there is little evidence of cellular infiltration of the meninges. This is apparently in contrast to the observations of Loewe, Hirschfeld and Strauss[1] in encephalitis experimentally produced in monkeys and rabbits. In one of my cases the perivascular infiltration was clearly seen in sections of the lower cervical region of the cord.

As regards the nature of the cells taking part in this infiltration, a majority appear to me to be lymphocytes or cells indistinguishable from such. McIntosh differentiates a certain number of polyblasts of Maximow and plasma cells. Marinesco describes fibroblasts, and in certain situations eosinophils. I have seen polymorphonuclear leucocytes in considerable numbers in one case.

Œdema.—This is a term which, when applied to the central nervous system, is a little apt to be loosely used. Dilatation of the perivascular lymph space may be artificially produced by imperfect fixation. This change is, however, too constantly present and striking in encephalitis to be of the nature of an artefact. In addition to this, often widespread, manifestation of œdema there is an interstitial dropsy of a more significant type. In my series of cases it has been a striking feature of parts related to the third nucleus and its fibres as they leave the pons. (Fig. 4.) The initial change is a bubble-like clear space which appears in the substance of the pons separating the nerve elements from one another and extending often in a longitudinal fashion for some distance. This spread is particularly well seen along the course of the third nerve before it leaves the pons, resulting in a splitting and separation of the fibres from one another. The same change is also well seen in the substantia nigra (Fig. 3).

FIG. 3.



Section of mesencephalon showing interstitial œdema of substantia nigra. There is also scattering of the normal pigment.

FIG. 4.

Œdema of the fibres of the third nerve before its exit from the mesencephalon.

Hæmorrhage.—The frequency of hæmorrhage is perhaps exaggerated. This is probably more characteristic of poliomyelitis than of encephalitis. It shows itself first, as a rule, in the perivascular lymph space. This space, instead of being empty or containing round cells, is filled with red blood corpuscles. Less frequently these hæmorrhages occur into the cerebral substance, and occasionally, as already mentioned, they occur on the surface of the brain. In my series of cases, except in one instance, hæmorrhage was not a conspicuous feature. In this case there were numerous hæmorrhages, one of them large, into the substance of the cerebellum close to the surface. The blood extended along the subarachnoid space for some distance and blood was present in the cerebro-spinal fluid. Hæmorrhages of this type no doubt account for the occasional occurrence of a blood-stained fluid obtained by lumbar puncture.

Pigmentation.—This appears to have been a striking feature of the cases studied by Da Fano and Ingleby. These observers found the pigment in nerve cells both near and at a distance from points of cell infiltration. In my series of cases I found little evidence of such pigmentation. It was present in the cells of the fourth nucleus in one instance, but I saw no evidence at all of the other "granules" described by Da Fano and Ingleby. Many of my sections were stained by Leishman's method, but I failed to observe the bluish-white corpuscles, oval or rounded in form, seen by the same observers. Apparently Da Fano and Ingleby (loc. cit.) relate the pigment granules and corpuscles to one another, suggesting that they may be of the nature of a causal germ.

An interesting alteration in the distribution of the pigment of the substantia nigra was a striking feature of all my cases. The pigment, instead of being confined to the nerve cells themselves, was scattered in rounded masses in the surrounding tissues, both free and inside phagocytic cells (Fig. 3). There was at the same time a proliferation of the neuroglia cells in the neighbourhood, the pigment being largely contained in the proliferated neuroglia cells. Not infrequently these cells, as Marinesco points out, contain several nuclei.

Summing up the histological changes I would give chief place to: (1) Hæmorrhage (a rare occurrence in my series of cases); (2) œdema of the nerve tissue; (3) proliferation of neuroglia; and (4) infiltration of nerve tissue and perivascular lymph sheath with cells, usually lymphocyte-like in type. In the cases which I have examined these changes are seen most strikingly in the ventral portion of the pons, especially in the region of the substantia nigra, implicating the fibres of the third nerve as they pass out, and thus accounting for one of the most common symptoms of the disease.

In no case were any organisms, or bodies suggesting organisms, seen.

Bibliography.—1. Bassoe, P.: Journ. Am. Med. Ass., 1919, p. 971. 2. Batten, F. E., and Still, G. F.: THE LANCET, May 4th, 1918, p. 636. 2a. Boyd, William: Canadian Med. Ass. Journ., February, 1920, p. 117. 3. Buzzard, E. Farquhar: THE LANCET, Dec. 21st, 1918, p. 835. 3a. Buzzard, E. Farquhar, and Greenfield, Godwin: Brain, vol. xlii., Part 4. 4. Crookshank, F. G.: THE LANCET, May 18th, 1918, p. 669. 4a. Crookshank, F. G.: Proc. R. S. Med., 1919, Sect. of History of Med. p. 1. 5. Von Economo: Wien. klin. Wchnschr., May 10th, 1917, S. 581. 6. Da Fano and Ingleby: Proc. R. S. Med., 1919, Pathol. Sect., p. 42. 7. Hall, Arthur J.: THE LANCET, April 20th, 1918, p. 568. 8. Hall, Arthur J.: Proc. R. S. Med., 1918, Med. Sect., p. xv. 9. Harris, Wilfred: THE LANCET, April 20th, 1918, p. 568. 10. James, S. P.: THE LANCET, Dec. 21st, 1918, p. 837. 11. Leichtenstern: Deutsch. med. Wchnschr., 1890, S. 510. 12. McIntosh, James: Rep. to Loc. Govt. Bd., New Series, No. 121, 1918, p. 57. 13. MacNalty, A. Salusbury: Idem, p. 12. 14. MacNalty, A. Salusbury: Ann. Rep. to Loc. Govt. Bd. for 1919. 15. Marinesco, G.: Rep. to Loc. Govt. Bd., New Series, No. 121, 1918, p. 47. 16. Melland, Charles H.: Brit. Med. Jour., May 18th and 25th, 1918. 17. Nauwerck: Deutsch. med. Wchnschr., Nr. 25. 1895. 18. Netter: Bull. de l'Acad. de Méd., March 22nd, 1918. 18a. Netter: Bull. de l'Acad. de Méd., lxxxiii., p. 303. 19. Oppenheim und Cassirer: Die Encephalitis, 1907. 20. Reece, R. J.: Ann. Rep. to Loc. Govt. Bd. for 1919. 21. Strauss, I., Hirschfeld, S., and Loewe, L.: N. York Med. Journ., 1919, p. 772. 22. Vaidya, S. K.: THE LANCET, Sept. 7th, 1918, p. 322. 23. Von Wiesner: Wien. klin. Wchnschr., July 26th, 1917. 24. Wilson, S. A. K.: THE LANCET, July 6th, 1918, p. 7.

[1] Journal of Infectious Diseases, vol. xxv., No. 5, p. 378.

DONATIONS AND BEQUESTS.—By the will of the late Mr. Frederick John Warner, of Brighton, the testator has left about £20,000 to be divided between the London Hospital and the Middlesex Hospital.—An anonymous donor has given £1000 war stock for the "Hornshaw" bed in the Alton Cripples' Hospital.

THE ADVANTAGES AFFORDED BY EXTENSION IN THE TREATMENT OF DISEASED JOINTS.

BY SIR W. ARBUTHNOT LANE, BART., M.S., F.R.C.S.,
CONSULTING SURGEON, GUY'S HOSPITAL, ETC.

QUITE a number of years have elapsed since my views on the treatment of tuberculous, rheumatoidal, and other conditions of joints by means of rest were first shaken and then altered by the observation of the results of the combination of movements and extension afforded by Mr. Hoefftcke's appliances. Up to that time I was imbued with the view, then accepted, that rest was a factor of vital importance in the treatment of diseased joints. I then learnt that if sufficient extension could be exerted to take pressure off the opposing articular surfaces of the affected joint movement was often most beneficial and often accompanied with little or no pain. This is an illustration of the law to which I have frequently called attention—namely, that everything that is universally accepted as true in surgery is invariably false. It is not possible to exert upon all diseased joints, such as those of the spine, enough strain to enable the application of this principle. Yet even in these joints it points the direction in which we should work.

Effect of the Apparatus on the Diseased Joint.

The advantages afforded by the forcible separation of the diseased articular surfaces from one another, combined with free movement, are best shown by the use of a really efficient extension apparatus for the leg, which does not interfere with the functioning of the diseased joint. This is effected by the apparatus which Mr. Hoefftcke has devised. Not only does it exert great strain upon the articulation, keeping the surfaces from impacting on one another, but it permits of free movement of the joints of the leg, while enabling the sufferer to lead an active life. It keeps the parts well supplied with blood, which flows more freely through the vessels of the affected joint, while the muscles are kept functioning normally.

The method of cure is based on the same principle as that applied with so much success in the treatment of tuberculous disease of the lungs at the institutions at Frimley and elsewhere. Since I first grasped the great advantage afforded by this principle, best applied by the apparatus already referred to, I have employed it largely with much success. If a diseased joint is moved forcibly without being extended the articular surfaces are bruised or otherwise damaged, and acute inflammation follows only too frequently; whereas under the influence of extension the surfaces of the fixed or displaced joint can be moved freely on one another, so that such movement is followed by a minimum degree of rapidly subsiding inflammation. The apparatus, by means of which a considerable amount of extension is kept up upon the affected joint, is applied to the limb and the patient at once proceeds to lead an active life.

The mode of treatment varies to some extent with the joint affected. In many hip conditions it is necessary to employ forcible movement and extension before the apparatus is put on, whereas in disease of the knee the apparatus is applied at once to the deformed limb, extension being exerted gradually subsequently. Any residual flexion of the knee that cannot be overcome by the use of the splint alone can be met by forcible straightening of the limb on the extension table.

The knowledge of the usefulness of the combination of extension and movement has served me in good stead in recent years, and I have been able to restore the functions of many joints which would otherwise have been fixed, probably in a bad position, and materially interfering with the usefulness of the individual.

In 1887 I read a paper before the Royal Medico-Chirurgical Society entitled "An Undescribed Method by which the Superjacent Weight of the Body is Transmitted in a United or Ununited Fracture of the Neck of the Femur through an Acquired Ilio-femoral Articulation, and the Bearing of the Principle on the Surgery of the Hip-joint." In that I demonstrated, in cases of shortening of the upper extremity of the femur resulting from fracture of the neck of the bone or from disease of the joint, the mechanical advantages afforded by the formation of a new articulation in front of the transverse axis of pelvic rotation, since in these circumstances compensation for the shortening did away with the lordosis and the superjacent weight of the trunk was transmitted through a secure joint which allowed of a considerable range of movement. I applied this principle with great advantage to cases of tubercular and other diseases of the hip-joint fixed in a position of much adduction and flexion in which the active disease had become quiescent or in which the femur had ankylosed to the innominate bone. In the latter case the ankylosed bone was divided and its extremity rounded by means of a coarse file. If the femur was not ankylosed the stump of the residual head and neck was treated in a similar manner. The surface of bone immediately below the anterior inferior spinous process of the ilium was then freely exposed, when a cavity of a shape and size suitable to accommodate the rounded end of the femur was cut in its outer aspect by means of a gouge. (See figure.) A thick piece of silver wire was then passed through a drill hole, which traversed the neck and upper end of the shaft of the femur from without inwards. The floor of the cavity in the ilium was then perforated by the drill and the end of the wire was passed through it. The extremities of the wire were drawn together and fixed in such a manner as to retain the newly shaped surfaces of bone near to one another, care being taken not to approximate the surfaces too closely so that they would move freely on one another without friction. Movement around the axis afforded by the silver wire was commenced as soon as the soft parts had united. After the lapse of several weeks the wire was removed, when rotatory movements were instituted and the normal range of function was restored as far as the conditions would permit. I found that the younger the subject at the time of operation the sooner was a new joint developed and the more perfect was the result. I was surprised to find how rarely tuberculous infection sprang up in old diseased joints dealt with in this manner.

This figure represents the outer surface of the innominate bone. The dotted circle shows a the position of the cavity cut to accommodate the end of the neck of the femur.

My subsequent experience of the extension splint has convinced me that this freedom from recurrence was due chiefly to the fact that the articular surfaces were prevented to a great extent from exerting mutual pressure by the presence of the thick silver wire on which they were threaded for a considerable time, while the nutrition of the patient's joint benefited by the free movements that were employed to develop the new articulation. I have recently seen some of the cases on which this operation was performed in 1896 and 1897 and found that the new joints were still functioning efficiently. Several of these cases were described and illustrated in the *Clinical Journal* of Oct. 20th, 1897.

The chief obstacle that I experienced in these operations, and especially in other than young children, was the great pain on movement. I attempted to overcome this by various forms of extension apparatus, but could not obtain one which was in any way thoroughly efficient. If at that time I had been able to avail myself of the use of a thoroughly satisfactory extension apparatus—which did not exist at that time—I should have been able to enlarge the scope of my usefulness very materially and in many cases have simplified the surgical procedures.

A NOTE ON THE CLINICAL DIAGNOSIS OF DIPHTHERIA AND OTHER EXUDATIONS IN THE THROAT.[1]

BY HARRY DRINKWATER, M.D. EDIN.,
PHYSICIAN TO THE WREXHAM FEVER HOSPITAL.

BY clinical diagnosis I mean immediate diagnosis, at the bedside of the patient, by ocular inspection of the fauces, before a bacteriological examination is made.

A very considerable percentage of cases certified as diphtheria and sent as such into the fever hospital of which I have been in charge for between three and four years have been cases of follicular tonsillitis, influenza, or simple catarrh. On the other hand, many cases have been admitted in a hopeless condition of toxæmia, or only just in time for life to be saved by tracheotomy, the disease having been treated for several days as "quinsy." This uncertainty as to the differentiation of diphtheria from the simpler infections of the fauces is widespread, and medical practitioners are often in doubt apart from a bacteriological examination, which may mean a delay of 24 or 48 hours, with possibly disastrous results.

The thesis which I advance is that if certain visible characteristics are carefully observed, and more especially the distribution of the disease patches in the fauces, this uncertainty should seldom occur. As a matter of fact, my naked-eye diagnosis has been confirmed in every case by subsequent bacteriological examination, with the single exception of Vincent's angina, which cannot always be distinguished from diphtheria by the eye alone. In from 10 to 20 per cent. of cases of true diphtheria an examination of a swab-film is negative, and the Klebs-Löffler bacillus is only detected after cultivation in an incubator. Very often the swab has to be sent away by post, and there is inevitable delay. It is, therefore, obvious that if a diagnosis can be made by ocular inspection alone such means of diagnosis must have an immense advantage over the bacteriological method, however desirable the latter plan may be for purposes of confirmation.

If my plan of diagnosis has been uniformly correct for a period of over three years, in a hospital serving a district with a population of about 80,000, one is driven to the conclusion that exceptions must be few and far between. The points to be relied upon in making the diagnosis are illustrated by the drawings here shown; they are all hospital cases admitted as diphtheria.

The first point to note is the distribution of the patches, and for this purpose the fauces may be considered as divisible into six areas, three on each side of the mid-line, as shown in Fig. 1, where A B is the mid-line and the figures 1, 2, 3 are placed in the tonsillar, the uvular, and the palatal areas respectively. Every area may show some deposit, and in any one area the deposit may consist of a single patch or of several patches. The tonsillar area is the one most frequently affected. Now the important thing to observe is whether the tonsillar area (or any other area) shows one patch or more than one. If two or more patches are present on one tonsil or in one tonsillar area the disease is neither diphtheria nor Vincent's angina; most frequently it is follicular tonsillitis or influenza. In diphtheria the patch in any one area is single, and the same is true of Vincent's angina; in follicular tonsillitis and in influenza there are multiple patches in the tonsillar area.

In diphtheria the patch shows certain well-marked characteristics—viz.: (1) It is raised above the level of the mucous membrane. (2) The edges of the deposit are sharply defined all round. (3) The colour varies greatly; it may be white and glistening, bluish, yellow, or spotted with black or red. It rarely has the "wet wash-leather" appearance described in the text-books.

In a given case of membranous deposit on the fauces, if it is raised above the level of the mucous membrane, has sharply defined edges, and is single in each affected area, there can be no doubt that the disease is either diphtheria or Vincent's angina, and this diagnosis is arrived at in a few seconds without delay in waiting for a bacteriological report.

It is necessary to remark that these features are characteristic of the disease in the period of growth; after resolution has begun and the membrane is being cast off a number of isolated islands may be seen in the tonsillar area; but, of course, the diagnosis should have been made before this stage is reached. In diphtheria or Vincent's angina there may be five or six patches, but in neither disease do we see (in the period of growth) more than one patch in any one of the six faucial areas; each area may have one patch, but not more than one. If, then, in a given case two or more patches are seen in the tonsillar area the disease is not diphtheria, and a bacteriological examination is not required except for confirmation of the naked-eye diagnosis. The term diphtheria is applied to those cases in which Klebs-Löffler or Hoffmann's bacilli are present. If these germs are not present the disease is regarded as other than diphtheria.

Descriptions of Illustrations.

FIG. 1.—The areas of the fauces: (1) tonsillar area, between anterior and posterior pillars of the fauces; (2) uvular area; (3) palatal area.
FIG. 2.—Diphtheria. Single sharply defined patch in each tonsillar area; tonsils swollen.
FIG. 3.—Diphtheria. One patch in each tonsillar area; shows elevation of patch above surface of mucous membrane.
FIG. 4.—Diphtheria. Single patch on each side.
FIG. 5.—Diphtheria. Thick membrane extending into all six areas; edges sharply defined.
FIG. 6.—Diphtheria. Involving every area except right palatal.
FIG. 7.—Hoffmann's diphtheria. Distinguishable from Klebs-Löffler diphtheria only by bacteriological examination.
FIG. 8.—Vincent's angina. The distribution is like that of diphtheria. The deep depression ("penetrating ulcer") in the patch on the left tonsil is characteristic of Vincent's angina.
FIG. 9.—Vincent's angina. The thinning of the lower part of each patch is characteristic of Vincent's angina. It is not seen in diphtheria.
FIG. 10.—Double infection of diphtheria and Vincent's angina.
FIG. 11.—Double infection of diphtheria and Vincent's angina.
FIG. 12.—Influenza. Distinguished from diphtheria and Vincent's angina by having more than one patch in the tonsillar area.
FIG. 13.—Influenza. Showing two patches on right tonsil.
FIG. 14.—Influenza. The two patches on the left tonsil at once distinguish it from diphtheria.
FIG. 15.—Follicular tonsillitis. Tonsils congested. Pus oozing out of several follicles. FIG. 16.—Scarlet fever. FIG. 17.—Rubella.
FIG. 18.—Secondary syphilis. Thin deposit. The case was one of diphtheria which showed this appearance three weeks after admission to hospital.

The appearance of Vincent's angina as seen in the throat is very similar to that of diphtheria, so similar, in fact, that in many cases it is quite impossible to differentiate the two diseases. Vincent's angina may be said to mimic diphtheria, just as syphilis and hysteria mimic other diseases. Occasionally, however, we come across a case of Vincent's angina which can be at once recognised as such, owing to certain special features, the most characteristic of which is a sharply defined penetrating ulcer about the middle of the patch with its long axis running vertically, the deposit sometimes scarcely extending beyond the margins of the ulcer. Another peculiar feature is the marked thinning of the lower portion of the patch, making the inferior limit ill-defined. If either of these features be present Vincent's angina may be safely diagnosed. There is sometimes considerable erosion of the uvula. Sometimes the deposit is softer and more creamy than in diphtheria, whilst in other instances it is extremely dense and tenacious.

In follicular tonsillitis there is marked swelling and congestion of the tonsils, and muco-pus can be seen oozing out of several follicles. The single patch characteristic of diphtheria and Vincent's angina is never seen. In influenza the patches are multiple in the tonsillar area, and very often without any appreciable swelling of the tonsils.

Should these points be generally confirmed the conclusion would follow that, from the point of view of practical medicine, the naked-eye diagnosis at the bedside of the patient is incalculably more important than the bacteriological diagnosis, and that if generally acted upon there will result a considerable saving of life.

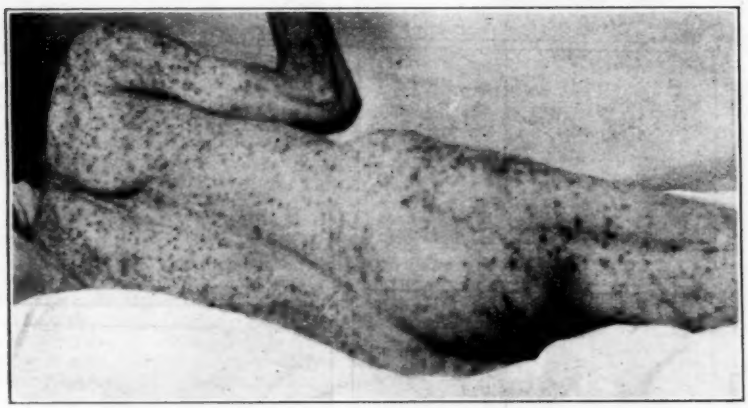
[1] Based upon a paper introducing a discussion at the Medical Society of London on Feb. 9th (see THE LANCET, Feb. 21st, p. 442).

1
A 3
2
1
B
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

THREE CASES OF MODIFIED SMALL-POX.

BY WALTER ALLINGHAM, M.R.C.S., L.R.C.P. LOND.,
MEDICAL OFFICER OF HEALTH, ORSETT, ESSEX, RURAL DISTRICT COUNCIL.

THREE small-pox cases of unusual interest have recently occurred in this district. The following details may prove useful in the diagnosis of similar cases. All three followed the same course with varying severity in conformity with their vaccinal states, each exhibiting similar characteristics as regards rashes and distribution. In each case headache was followed in three days by a papular rash (on forehead and chest), rapidly becoming vesicular and gradually involving the whole trunk and extremities equally. Flexor surfaces were affected as much as extensor, with several spots in both axillæ; palms of hands, soles of feet, and soft palate quite free. The vesicles were discrete, soft, and flat; some were ovoid, not umbilicated, and collapsed on puncture. As no history of contact with small-pox could be obtained in the first case, the diagnosis of chicken-pox was made, but on the eighth day of the first rash a second rash made its appearance, unaccompanied by any constitutional disturbance except a slight headache in the mildest of the three cases. This secondary rash, which was petechial, deep, and somewhat shotty, affected those parts more especially involved in true small-pox—that is, the brow, wrists, extensor surfaces of forearms and legs, palms of hands, and soles of feet; in two cases vesicles were seen on the soft palate. By this time most of the first rash was becoming dry, but many vesicles still remained full of lymph and quite soft. The two rashes were quite distinct and could easily be differentiated.



An unusual case of modified small-pox (Case 2), showing profuseness of first rash on the back and secondary rash on forearm. The latter became thicker on the wrist and hand, which are not shown.

Details of Cases.

CASE 1.—Male, 69. Vaccinated in infancy. Headache and general malaise for three days, with some temperature; when first seen vesicular rash on forehead, chest, back, and extremities generally; successive crops appeared on following days, affecting both axillæ, but avoiding palms and soles; on the third and fourth days of rash temperature rose to 102° F. and patient was delirious. Next day temperature fell and patient felt practically well. During the following days fresh spots appeared, having all the characteristics of chicken-pox, until the eighth day, when a few petechial spots were first noticed on palms of hands. Next day soles of feet were similarly affected, and two small vesicles were seen on soft palate; papules appeared on face, trunk, and arms, some quite shotty. I then decided the case was small-pox, and ordered removal to M.A.B. hospital ten days after first rash appeared, since when I have lost sight of the case, but am informed that the patient made a good recovery.

CASE 2.—Male, 60, brother of the first case. Vaccinated in infancy; revaccinated on the day first case was removed to hospital. Onset, headache not severe four days after vaccination. Two days later a few papules appeared on forehead and chest; the next day forehead, whole trunk, arms, thighs, legs covered with vesicular rash, also axillæ, hands and feet free. Seven days after vaccination, which was successful, patient was moved to the local small-pox hospital. Fresh vesicles continued to appear daily until the whole body, except palms and soles, was involved, the spots being ¼ to 1 inch apart. There was some swelling of the nose, where the spots were semi-confluent. Eight days after appearance of first rash two or three deep purple spots were noticed on terminal phalanx of each thumb, followed later in the day by a few on soles of feet. These were distinctly shotty and quite different in appearance from those seen in the first rash. Next day the new rash was well established, intermixed with the old, but affecting more especially the extremities and extensor surfaces.

The accompanying photograph, which I took 11 days after appearance of the first rash, shows how particularly the secondary rash had involved the forearm, and well illustrates the profuseness of the first rash on the back, which was only slightly affected by the second rash. No constitutional symptoms ushered in the second rash, and throughout the temperature never rose to 100° F. Subsequently some of the spots coalesced, to form large flat sloughs the size of a shilling; otherwise the patient was making a good recovery.

CASE 3.—Female, 61, wife of first patient. Vaccinated in infancy; revaccinated on the day her husband was removed to M.A.B. hospital. Onset, severe headache eight days after successful revaccination. Two days later a few papules on forehead and chest; numerous small vesicles on arm adjacent to vaccination groups. On the next day more vesicles appeared on chest, abdomen, axillæ, back and thighs, and arms—flat, soft and superficial, not umbilicated. The patient was then removed to local small-pox hospital. Small crops of vesicles continued to appear on successive days, but they were very scanty, showing no preference for the extremities. Two large groups of small vesicles like herpes occurred on chest and back; very few spots on the face, hands, and feet; beyond initial headache patient felt well and had no temperature. Nine days after first rash appeared a few petechial spots showed on soles of feet; patient had a return of slight headache for a few hours. Following this more spots of a deep nature became evident, intermixed with the other rash, but in this case neither rash became profuse. Subsequently seeds (dried-up contents of pocks) have been extracted from some of the pocks in all three cases, proving the secondary rash to be small-pox.

Remarks.

Reviewing these cases, which occurred without any history of exposure to small-pox, the diagnosis of chicken-pox on the first rash was, in my opinion, reasonable, and it was only after the first patient developed a secondary rash that I decided to isolate the subsequent cases at an early date. It might be wise to insist on isolation of chicken-pox for the first ten days.

AT the Royal Institution of Great Britain, the Friday evening discourse on June 4th will be delivered, at 9 o'clock, by Sir Ronald Ross, the subject being Science and Poetry.

THE NEED OF DENTISTS.—With regard to Professor Adami's call for 10,000 dentists, mentioned in THE LANCET of May 22nd (p. 1142), it is important to remember that there are only about 5000 registered dentists in the United Kingdom—a number little greater that in 1878, when the Dental Register was instituted—a number, moreover, quite insufficient to attend to the dental needs of the 5,750,000 school children alone, even if all dentists gave their whole time to school work. The number of dental students in Manchester University is now 130; nearly three-quarters of them are ex-Service men; there are 12 women students.

FULL-TIME TUBAL PREGNANCY.

CÆSAREAN SALPINGECTOMY: RECOVERY.

BY R. ECCLES SMITH, O.B.E., M.B., CH.B. LEEDS, F.R.C.S. EDIN.,

SURGEON TO THE SURGICAL HOSPITAL, BARRY, GLAM.

THE question of a viable child going to term in a Fallopian tube without rupture of the tube has been the subject of much discussion and diversity of opinion. Sir John Bland-Sutton, after vast experience, refuses to acknowledge the possibility of such an occurrence. So far, in the literature, I can find no case similar to the one I am recording, in which I believe complete rupture of the tube did not take place. I admit that incomplete rupture of one or more of the coats may have occurred in the earlier months, followed by sufficient reinforcement by adhesions and localised protective peritonitis (as shown by the repeated alarms) thwarting complete rupture, and allowing a viable child to go to full term until delivered by surgical interference.

Dr. R. P. Harris[1] collected 40 cases of removal of a living fœtus over seven months, with a mortality of 10 mothers and 13 infants. Van Boll[2] records 46 maternal deaths out of 83 cases of operative treatment for pregnancy over seven months. Sitner's[3] latest statistics show a 30 per cent. mortality of the mother where the placenta was removed and the sac left, and 5·7 per cent. where the whole or the greater part of the sac was removed. The fœtus in these cases did not apparently reach the full period.

The Case Described.

Mrs. P., aged 32 years, 3-para, nine years, eight years, and six years ago. Children were born naturally and without difficulty. Menses regular, and last seen April 10th, 1919, for five days. On June 12th, presumably about the eighth week of pregnancy, she was suddenly seized with acute pain on the left side of the lower abdomen, with "cramp" in the left leg. She was in bed for two days, and had what she thought was a copious menstruation for four days, resulting from an attempt at tubal rupture or abortion. Some slight swelling of the left leg was noticed at this time. Examination by her doctor showed an indefinite fullness in the left side of the pelvis, apparently not sufficient to diagnose a pelvic hæmatocele (small if present at all), but certainly suggestive of a pregnant tube. Exactly seven days later another attack was recorded, similar to the above but of much less severity, with no external hæmorrhage and not necessitating rest in bed. Every 14 to 21 days from this date up to term she had attacks of pain without hæmorrhage and insufficient to take her from her duties except for a few hours. The patient went on with what she thought was a pregnancy ordinary in time but extraordinary in character. In October and November she had frequency and incontinence of urine. Associated with this was an offensive vaginal discharge. A coli-cystitis (cultured later) was present.

On Dec. 22nd I saw her in consultation with Dr. W. P. Starforth, of Barry. She had been in labour for some 16 to 20 hours. The pains were frequent and strong. To observation and palpation the abdomen suggested a full-time pregnancy, the fundus of the "uterus" being pushed over to the right side. Vaginally the cervix was extremely high up, almost out of reach. There was an old tear and a marked erosion with endocervicitis producing an offensive discharge. The cervix was only slightly softened and partly dilated, but not in keeping with a cervix of labour. Per rectum there was a large hard mass at the pelvic brim on the left side, corresponding to the head of the infant. The uterus was not defined, but thought to be the enlarged sac felt in the abdomen.

The diagnosis of obstructed labour was made, conjecture being that this was due either to a rigid cervix or to some parametric tumour. I may say here that the earlier history was not fully gathered at the time of the examination, as the original medical attendant had left the case without recording the early symptoms, and the patient's disjointed story of an early threatened abortion was taken too much for granted. Operative measures were advised.

Operation.—Median incision 8 inches long. An apparently full time pregnant "uterus" was carefully packed off from the abdominal cavity. During this process a strong band across the upper pole of the gestation sac, thought to be an adhesion of the great omentum, was felt. Incision into the "uterus" proved this sac to be abnormally thin-walled. The infant was rapidly evacuated, the head being in the pelvis. The lack of the usual contraction of the "uterus," in spite of a prior injection of 1 c.cm. of pituitrin, gave rise to a suspicion of extra-uterine gestation. A normal placenta was stripped off from the upper and posterior walls of the gestation sac. Careful exploration of the sac did not reveal any rupture. Except at the placental site the walls were homogeneously smooth, and the infant was completely covered by the gestation sac. There were no signs of a pelvic hæmatocele or of organised clot of any dimensions, so that if rupture had taken place it must have been incomplete or negligible. The true pelvis was then explored. A slightly enlarged normal uterus, right tube, and ovary were present. The left tube for half an inch was normal, and then expanded into the gestation sac. The sac, now rapidly filling with blood, was momentarily packed and reinspected. The band mentioned turned out to be the pelvic colon stretched over the sac, the layers of the broad ligament having been pushed up before the increasing tube. The peritoneum was quickly incised and stripped off the sac. It was not possible to free the pelvic portion of the sac completely. The left tube was then ligated at its attachment to the uterus and the right tube ligated and divided for sterilisation. The main part of the sac with the portion containing the placental site was clamped off and removed. A few deep mattress sutures to approximate as far as possible the walls of the remainder and a running suture to bring together the edges of the sac and arrest hæmorrhage were inserted. Hæmostasis completed, the peritoneum was then closed. Rapid abdominal toilet and closure of the abdomen without a drain completed the operation in under an hour.

The child was fully formed, well nourished, of good colour, and weighed 5½ lb. The head was markedly flattened over the left parieto-occipital region. The right side of the neck was completely depressed as though a ball had been pressed into it. The mandible on the right side was almost semilunar with the concavity upwards. These temporary deformities are rapidly being rectified by nature.

Except for the passage of a clot per vaginam (no decidua) and a slight chest complication the mother made an uninterrupted recovery, and went home in a fortnight. About 14 days later she had some further bladder disturbance, which rapidly cleared up with urinary antiseptics. Examination reveals nothing abnormal in the left side of the pelvis except a little thickening.

Report on the sac by Dr. KNYVETT GORDON. (The portion was taken from the edge of the sac.)

"This specimen is a portion of the Fallopian tube much stretched and thinned, and with the epithelium almost obliterated by pressure. Between the muscle fibres are masses of fibrin and leucocytes. No decidual cells or chorionic villi are present."

I am indebted to Dr. Starforth for his assistance at this case, to Dr. Lawrence Pick for a very difficult anæsthetic, and to Dr. Gordon for his careful report on the section.

For the kindly interest, advice, and examination of the specimen I am deeply grateful to Sir John Bland-Sutton, on whose dictum that full-time tubal pregnancy without rupture is not possible this case appears to me to throw some doubt.

References.—1. Kelly's Operative Gynæc., vol. ii. 2. Centralbl. f. Gyn., No. 15, 1899. 3. Amer. Journ. Obstet., No. 6, 1908.

LIMITATION OF PANEL PATIENTS IN ABERDEEN.—On May 17th, at a special meeting of the Aberdeen Burgh Insurance Committee, it was agreed, among other things, that the total number of patients on a doctor's panel must not exceed 2500.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—The annual general meeting of this society was held on May 19th, Sir Alfred Pearce Gould in the chair. Sir Malcolm Morris and Dr. J. Needham were elected Vice-Presidents and eight new directors were also elected to fill the vacancies in the Court. The society consists at the present time of one honorary, 160 life, and 135 ordinary members, making a total of 296, and from an investigation of the figures for the past 25 years it appears that the total number of members remains practically stationary, the expenses have not increased, and they have been met by the subscriptions. The invested capital has increased from £95,700 in 1895 to £144,250 in 1920, this increase having been due mainly to the large legacy received from the late Mr. Brickwell. The annual grants during the same period have increased from £3280 10*s.* 5*d.* to £4937 19*s.* 10*d.* Further particulars of the society may be obtained on application to the Secretary at the offices of the Society, 11, Chandos-street, Cavendish-square, W. 1.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

BRONCHO-PULMONARY SPIROCHÆTOSIS (CASTELLANI) SIMULATING PULMONARY TUBERCULOSIS.

BY C. LESLIE BROWNE, L.R.C.P., L.R.C.S.,
ASSISTANT MEDICAL SUPERINTENDENT, CLARE HALL SANATORIUM.

CONSIDERING the importance of the question of pulmonary tuberculosis at the present time, the following notes of two cases occurring in Clare Hall Sanatorium may be of interest.

CASE 1.—E. B., aged 47 years, male, admitted on May 5th, 1919. Born in London and lived there all his life. Health has always been good till nine years previous to admission, when he had a severe attack of bronchitis. This left him with a cough, which continued slight till October, 1918, when a second attack of bronchitis ensued. After recovery cough still continued and became very persistent. About the middle of February he had an attack of hæmoptysis, quantity about an ounce. Between the middle of February and the end of April he had five similar attacks, and on each occasion the amount of blood was about an ounce. No family history of T.B. traceable.

The general condition of patient on admission was fairly good and temperature was normal.

Lungs: Signs of bronchitis present.

Mouth: Some carious teeth present, with spongy gums, bleeding easily on pressure.

Pharynx: Injected, but no definite soreness present. Patient did not feel his throat sore.

Sputum: Frequent and careful examinations were made. No T.B. were found, but spirochætes were present in enormous numbers. Sputum was almost purulent in character, with an offensive odour.

As secretion taken from crypts between teeth and gums showed heavy infection with spirochætes great care was taken in having the mouth thoroughly washed with antiseptic lotion just before obtaining sputum. This made no difference in the enormous numbers of spirochætes.

Morphology of spirochætes.—Actively motile; length from 7 to 29 μ, with tapering ends; spirals varied from 2 to 9, and quite irregular. An occasional one with regular spirals was found. On staining, carbol gentian violet gave the best and clearest definition. Fontana's method also gave a good picture. The Romanowski stains were not quite so successful. The spirochætes were Gram-negative; Benian's stain presents an excellent picture.

Treatment.—Arrhenal (disodium methylarsenate) was given by mouth in ½-gr. doses, twice daily for some weeks. There was a slight diminution in the numbers of spirochætes at the end of this period and an improvement in the general condition of the patient. Cough was less persistent. Kharsivan in doses of 0·1 g. was next given intramuscularly till 1·2 g. had been administered. Under this treatment the number of spirochætes diminished rapidly, cough became considerably less. Patient slept much better and his general condition was very satisfactory. On discharge spirochætes were still present, but not many. A mouthwash was used throughout the course of treatment and the teeth were attended to by a dentist. This patient had no recurrence of hæmoptysis while under treatment here.

CASE 2.—D. L., aged 28 years, female, admitted on July 21st, 1919. Trouble commenced with hæmoptysis in March, 1915. Since then it has been frequent, sometimes daily for seven or eight days consecutively, and she has been in the following institutions: Chelsea Hospital, March to November, 1915; Clare Hall Sanatorium, November, 1915, to January, 1917; Neasden Isolation Hospital (T.B. ward), January to June, 1917; Eversfield Chest Hospital, St. Leonards, August, 1917, to June, 1918; Middlesex Hospital, November, 1918, to March, 1919.

Patient was born in England, and has always lived here, except for three years—1911 to 1914—spent in Canada. She states that in November, 1912, she was operated on for gastric ulcer, and had a second operation for the same purpose a month later. In the winter of 1913 she had an operation for appendicitis. On her return to England she developed intestinal obstruction, and was operated on at St. Mary's Hospital, Paddington. Later in the winter of 1914–15 she had pneumonia and pleurisy, which left her with a cough. Her first attack of hæmoptysis followed shortly after.

On the first day of admission to the sanatorium she had a small hæmoptysis—about an ounce at most. During her stay here she has had frequent hæmoptyses, varying from 2 drachms to 4 ounces, and sometimes more. On five or six days in succession she has produced coloured sputum. Routine examination of sputum showed enormous numbers of spirochætes. Examination of mouth showed some decayed teeth with spongy gums, which bled easily on pressure. Examination of secretion from crypts between gums and teeth also showed enormous numbers of spirochætes. The same precaution was taken as in Case 1 to prevent sputum examined being contaminated from the mouth. Frequent and careful examination of sputum showed no T.B. Physical signs in the lungs were those of bronchitis, and were practically the same as when here in 1916. Abdomen showed operation scars. Stomach dilated; colon dilated. Constipation, with passage of large amount of mucus. There was much pain before and after motion. The character of hæmorrhagic sputum was a peculiar pink mixture, as described by Violle, with minute air-bubbles intimately mixed. The amount of blood was always considerably less than it appeared to be, there being quite a large proportion of watery sanguineous fluid with the thicker portions floating on the surface. The microscopic characters of the spirochæte were similar to those mentioned in Case 1.

Treatment.—At first this was directed to the alimentary tract and then arrhenal was given, but at the end of three weeks severe gastro-intestinal irritation was set up and it had to be discontinued. This soon improved and general treatment was given. Patient refused treatment by kharsivan. In spite of unsatisfactory treatment, the general condition improved and the spirochætes diminished considerably in numbers at the time of discharge. She was still producing colour expectoration when she left.

Remarks.

As far as I am aware, no case such as those described has been published as having occurred in England. Castellani first observed this condition in Ceylon in 1905, and his observations were confirmed by others in tropical parts. Later, in 1915, some cases were seen by Galli Valerio in Switzerland, Lurie in Serbia, and Castellani in the Balearic-Adriatic zone. In 1916 some cases were found in France by Violle, and in 1917–18 a few cases were observed by Rubière and Gautier in France among French and Indo-Chinese. Violle, in THE LANCET of Dec. 7th, 1918, remarks, "except in one single case, none of my patients had any mouth lesions of spirochætal origin," and Rubière and Gautier, writing in the *Journal of the Société de Biologie de Paris*, remark on the "absence of pharyngeal or dental lesions." In both the above cases the dental lesions were marked and, as noted, spirochætes were present in enormous numbers in the exudate. In other respects these two cases appear to agree with the description given by the writers mentioned. The physical signs in the lungs were those of bronchitis, the body was fairly well nourished, and the temperature normal. D. L. (Case 2) sometimes had a rise of temperature for a few days, but this was apparently due to other conditions. It will be noted that neither of these cases had any connexion with Eastern parts or peoples, and E. B. (Case 1) had never been out of England.

There is a proportion of cases in all sanatoriums with negative sputum, and a routine examination of such negatives might give a satisfactory explanation of some of them.

A CASE OF HYDATIDIFORM MOLE IN A MULTIPARA AGED 51.

BY H. H. GELLERT, M.B., CH.B. EDIN.,
LATE SENIOR RESIDENT, METROPOLITAN HOSPITAL, E.

Bona fide cases of pregnancy occurring after the age of 50 years are possibly sufficiently scarce to merit their publication from the point of view of interest as well as of statistics.

The patient, a multipara, aged 51 years 11 months, was admitted to the Metropolitan Hospital on Feb. 9th, 1920, complaining of continuous hæmorrhage per vaginam, persistent vomiting of three weeks' duration, and increasing weakness. A mass occupying the pelvic cavity and palpable through the lower abdominal wall suggested a diagnosis of fibroid tumour of the uterus, and the patient was admitted with a view to having hysterectomy performed.

Previous history.—Married 27 years; eight children, all normal confinements; youngest child 7 years old; no miscarriages. Had never been robust, and was addicted to headaches, anorexia, and slight dyspnœa. Catamenia perfectly regular up to November, 1919, when she had her last normal period, after which she saw nothing till Jan. 20th, 1920. From that date she started to lose and continued for a week. This she imagined to be another period. About this time she began to feel ill and started to vomit. The hæmorrhage commenced again after a week's cessation and had continued ever since, increasing in amount, and at times slightly offensive. She rapidly became weaker, the vomiting was persistent, occurring at all times of the day or night, and she was unable to keep food down at all. She had lost weight. Since Jan. 20th she had noticed some tenderness over the lower part of her abdomen, especially on the right side; vertigo and a dull ache in the lower part of the back were also present. No increase in the size of the abdomen or breasts had been noticed by the patient. There was no history of constipation, retention, frequency, or pain on micturition, and no family history of syphilis.

Present condition.—On examination the following points were noted. A tired, ill-looking woman, anxious appearance, slightly jaundiced and anæmic. Temperature 99·4° F.; pulse 104. Tongue coated; breasts small and flabby; no secretion evident. Abdomen showed no marked distension. On palpation a smooth, globular lump, slightly tender, rising just out of the brim of the pelvis, could be felt through the lower abdominal wall, and was slightly inclined to the right side of the middle line. No uterine souffle heard. Vaginal examination: No discolouration of vulva; a mass was felt in both fornices, filling up the pelvic cavity, and continuous with the tumour palpable through the abdominal wall, firm, elastic, and definite in outline. No softening of the cervix could be detected. The urine was acid and deposited mucus. No albumin or other abnormal constituents were present.

During the three days the patient was under observation prior to operation the temperature remained at 99·4° F., and she continued to lose blood. No vomiting actually took place, but there was nausea and retching on occasions. No renal or pulmonary condition was found to account for the toxic appearance of the patient. This debilitated condition gave rise to a momentary doubt as to the wisdom of submitting her to operation at once, but in view of the fact that the metrorrhagia was decidedly increasing in amount it was considered advisable to open the abdomen.

Operation.—After a preliminary catheterisation and plugging of vagina the abdomen was opened in the middle line and an enlarged uterus, the size of a four months' pregnancy, was seen rising above the brim of the pelvic cavity; it was tense, elastic, regular in outline, and showed all the characteristics of early pregnancy. After incision of the fundus the uterine cavity was explored with the finger. The contents were found to be an hydatidiform mole, consisting of the typical chorionic villi in the form of gelatinous cysts. The mole was loosened by "curetting" with the finger and the whole cavity systematically cleared. No serious hæmorrhage was encountered. The uterine incision was sutured and invaginated and the abdomen closed in layers. Subsequently ergot was given hypodermically and the hæmorrhage per vaginam gradually ceased. The patient's recovery has been uninterrupted.

The failure to recognise the possibility of pregnancy, in spite of a somewhat suggestive occurrence of a short period of amenorrhœa, may in view of the age of the patient be considered a permissible lapse in the framing of a diagnosis.

I am indebted to Mr. Clifford White, under whose care the case was admitted, for permission to publish the details.

HEALTH CERTIFICATES BEFORE MARRIAGE.—Our Vienna correspondent writes that the Austrian Board of Health intends to follow the example of several other States—for example, the United States and Bohemia—and attempt to make marriage more safe by requiring from both intending parties a certificate of health from a competent medical man. The necessity for such a certificate is illustrated by the fact that the health of the Austrian population is much worse than ever before. Professor Oppenheim, the leading specialist on syphilis and dermatology, states that 72 per cent. of all prostitutes are now diseased, as against only 9 per cent. before the war. This increase of disease endangers the individual, and causes widespread sterility of marriages or illness of the offspring, acting most harmfully on the population. In the Act of Parliament by which this health certificate is to be made legal provision will be made also to favour large families by taxation allowances to couples with more than two children, the advantages increasing with the number of children.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on May 21st, under the presidency of Mr. HERBERT TILLEY.

Rapid Recovery from Acute Mastoid Suppuration.

The PRESIDENT showed a woman, aged 42, who was found to have the right antrum full of pus. Owing to subacute inflammation in the first molar, that tooth was removed, when pus issued from the socket. Despite daily irrigation of the antrum the discharge continued, and the right middle ear became inflamed, and the drum membrane perforated. During the next ten days the pain settled in the mastoid and parietal region. He opened the right mastoid antrum and cells, which were infiltrated with pus. The parts were well cleansed, smeared with B.I.P., and the skin wound sutured in its whole extent. Immediate union took place, and improvement was continuous. She had left the home in a fortnight. Her hearing was so good that she could hear a colloquial whisper at 3 feet, and the ticking of a watch at 8 inches.

Mr. E. M. WOODMAN congratulated the President on his result, and told of a very satisfactory experience he had had with the same treatment since Mr. Tilley brought it forward a year ago. It seemed that the more dirty the cases the better they did. But he would not advise this precise treatment in cases in which there was infection of the lateral sinus, with rigors and high temperature.—Sir CHARLES BALLANCE said he did not think there could be a better or quicker result in a bad case of acute mastoid disease. To get healing in a fortnight in such a case was a triumph of surgery.

Tumours of the Eighth Nerve.

Mr. J. S. FRASER (Edinburgh) presented a careful statement on the ætiology and pathology of these tumours, with a dissertation on their microscopical appearances, clinical aspect, diagnosis, and the responses of the patients to hearing tests. This was supplemented by a series of beautiful photo-micrographs and notes of four typical cases. These tumours may originate in the dura mater, the pia arachnoid, the peri- or endo-neurium, or the sheath of Schwann. The tumour might only affect the vestibular nerve, or occur only in the modiolus of the cochlea. The tumour consists of fibres and nuclei, the former running in all directions; and hæmorrhages are often noted. Sometimes bundles of well-preserved nerve fibres are seen running through the tumour. In his four cases there was marked involvement of the labyrinth, and in one of them the perilymph space was crowded with fibrin; this, apparently coinciding with the "choked disc" in eye conditions, he termed, after a foreign observer, "choked labyrinth." The usual age-incidence was 30 to 50 years. With regard to symptoms, the first were nearly always auditory and vestibular—tinnitus, giddiness, and deafness; next headache, increased on stooping; unsteady gait, with tendency to fall to the side of the lesion. There were also diminution or loss of corneal reflexes, diplopia, and slight facial weakness; and later, difficulty in swallowing, cerebellar seizures, convulsions and loss of consciousness, anosmia, loss of memory, &c. Unless these tumours could be diagnosed much earlier than at present it was almost useless to operate. Radiograms of the two ears had not been helpful. Nerve-deafness with loss of the lower tones, in the absence of middle-ear disease, was held by Rhese to indicate the probability of acoustic tumour.

The PRESIDENT and Sir CHARLES BALLANCE spoke highly of the value of Mr. Fraser's researches as shown in his exposition of this series of cases.—Mr. W. M. MOLLISON referred to one case of acoustic tumour upon which he had operated. The patient had the symptoms

which Mr. Fraser described, and she was completely deaf. The tumour he removed from the eighth nerve was the size of a hazel-nut, and she made an excellent recovery. She died, however, of mental symptoms three months later.—Mr. SYDNEY SCOTT also expressed his appreciation of Mr. Fraser's work. The "choked labyrinth" which the latter spoke of was not present in all cases. There were many intracranial tumours which were not necessarily auditory nerve tumours, and it was only when the auditory nerve became defunct that one could be certain a case was one of unilateral auditory nerve tumour. Patients suspected of having the latter condition should be kept under observation by their medical attendant; it would be wrong to tell them that nothing could be done for them. When the patient was very tolerant of the passage of the Eustachian catheter, he suspected fifth nerve anæsthesia. He agreed as to the significance of loss of lower-tone hearing in the diagnosis of acoustic tumour. He had seen about 30 of these cases.—Dr. JOBSON HORNE referred to a case in 1898, in a woman, aged 54, who, four years later, died insane. If these tumours were congenital, he asked why they took so long to develop sufficiently to cause symptoms.—Mr. E. D. DAVIS thought these cases must be rare; in 12 years' ear work he had seen only two possible cases of the condition. Unilateral nerve-deafness caused one to think of the likelihood of the case being one of acoustic tumour.

Atresia of Auditory Meatus.

Mr. H. BEDFORD RUSSELL showed a man, aged 24, the subject of atresia of the left external auditory meatus. There had never been any discharge from this ear, and the hearing was remarkably good, while there was very little loss of bone conduction. He proposed to remove the diaphragm and to skin graft.—The PRESIDENT referred to a bilateral case of the same kind which he had five years ago, in a stout woman whose condition dated from scarlet fever which she had as a child. She refused operation, and hearing was improved and the tinnitus relieved by catheter inflation.—Mr. T. B. LAYTON, Mr. SCOTT, Mr. MOLLISON, and Mr. LAWSON WHALE also discussed the case.

Destruction of Ear-drum by Hot Liquid.

Mr. L. COLLEDGE showed a patient who, four months ago, upset a cup of hot tea over her right ear. Two months later there was much discharge from and swelling of the meatus. Antiseptic treatment led to improvement, but left a perforation, including almost the whole of the membrana tensa. There was complaint of much tinnitus on that side, which bromide scarcely relieved.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

ÆTIOLOGY OF PELLAGRA.

AT a meeting of this society held at 11, Chandos-street, London, W., on May 14th, with Professor W. J. SIMPSON, the President, in the chair, Dr. E. J. WOOD read a paper on the Ætiology of Pellagra from the Standpoint of a Deficiency Disease. Considerable attention has been directed to this important subject in recent issues of THE LANCET by papers from Dr. A. D. Bigland and Dr. J. I. Enright, giving their experiences of the disease among Ottoman and German prisoners in Egypt, and challenging the view that a food deficiency is the sole cause; by a leading article summarising the conflicting opinions and theories as to its origin, and by a digest of the valuable report of the Committee of Inquiry on Pellagra in Egypt in 1918. It is probable that the findings contained in this report attain as near an approach to the correct solution of the much-vexed problem of the ætiology of pellagra as is at present possible.

With these results Dr. Wood found himself in close accord, and the support given by him is of considerable value, based as it is on a close original study of the disease existing in the State of North Carolina, U.S.A., and viewed from the aspect presented to an American mind. His observations are drawn from a part of the world widely remote from that in which recent British inquiries have been pursued, and presenting entirely different conditions of living and general hygiene. It is a striking fact that the first reference to the occurrence of pellagra in America is as recent as 1907. Dr. Wood's first cases were seen in 1905, and despite careful inquiry of older physicians he could obtain no evidence of its existence prior to that date. He further remarked the noteworthy fact that between the years 1905 and 1909 the disease assumed a malignant and fulminating type in North Carolina suggestive of its first invasion of a virgin soil, comparable with the devastating effect of the original introduction of measles among the Fijians. Since this period pellagra had assumed its more chronic form as found in the eastern hemisphere.

Valuable Results by other Workers.

Dr. Wood reviewed the recent valuable work done by W. H. Wilson in Cairo, of P. B. Boyd and his co-workers in Egypt, from the standpoint of a food-deficiency disease, and the conclusions drawn by them as to the dangerous influence of a fall in the biological value of the protein of the diet in the production of pellagra, as well as the important part played by diarrhœal disease in disturbing the protein balance. K. Thomas had shown that in maintaining nitrogenous equilibrium various substances differed widely; the biological value of vegetable protein, especially that derived from maize, was found to be less than that of milk or meat protein in a ratio of about one to three. This inferiority of the maize proteins was regarded as explicable by the large amount of zein, which is devoid of both tryptophane and lysine—two amino-acids essential for animal nutrition.

Dr. Wood fully endorsed the important conclusions of Joseph Goldberger as the result of observations based on (1) the dietetic origin of the disease; (2) its dependence on some undetermined error in diet, with a disproportionately high vegetable and a disproportionately low protein component derived from animal or leguminous sources; (3) the absence of pellagra among those consuming a mixed, well-balanced, and suitably varied diet. Attention was drawn to the atypical distribution of the skin lesions in Goldberger's cases and to the criticism of the correctness of diagnosis, which was refuted by the definite evidence that no part of the skin surface was exempt from invasion, even the scrotum, vulva, the back of the knees, and elbows, as shown by some of Dr. Wood's own pellagrous patients. Mention was made of the supposed influence of bacterial infection through the agency of imperfect sewage disposal, regarded as an ætiological factor by the Thompson-McFadden Commission, McCullum, and others. The infective origin of the disease had at one time met with Dr. Wood's support until it was disproved by the results of the heroic experiments of Goldberger and his volunteers, who exposed themselves to infection by consuming the fæces, urine, and desquamations of pellagrins, without anything suggestive of the disease appearing. In spite of this evidence against infection, the possibility of an infectious element playing perhaps a secondary, but not less essential, part could not be excluded.

Distribution of Pellagra in North Carolina.

Interesting facts as to the distribution of pellagra in North Carolina were introduced by means of a map of the State, and it was pointed out that the disease was chiefly confined to the foothills of the high mountains bounding the western frontier, and that, as a rule, its incidence was much less along the Atlantic seaboard, whilst in the mountains themselves its occurrence was very rare. Its distribution at one time suggested the influence of some insect pest, but this had not been demonstrated. A direct relationship between lines of travel and the topography of the disease might also have been viewed as evidence of the spread of infection. The food factor, however, eventually afforded a surer guide in tracing the probable source of the disease, one evidently independent of the vitality, mode of living, or hygienic conditions which might prevail among the inhabitants, either of the mountains, foothills, or seaboard.

The dwellers in the mountains were described as being the most degraded type of Anglo-Saxon known, lowered by inbreeding for the past three centuries, and often living in most insanitary and overcrowded huts, on a diet far from ideal. Yet the mountaineer did not suffer from the disease. His food consisted chiefly of maize ground in toto at the local water mill and consumed before rancid decomposition of the germ could occur. On the other hand, the inhabitants of the foothills—workers in the local cotton mills—availed themselves of whatever was provided by the local merchant in the form of commercial maize, meal, and patent wheat-flour, and adopted whatever means would curtail and facilitate the cooking process. In consequence their food

was composed of wheat-flour without cortex, maize-meal milled without bran or germ, and a variety of chemical rising agents. It was among the consumers of this diet that pellagra prevailed. Dr. Wood described this circumstantial association very concisely in the following words: "It was interesting to trace the outbreak of pellagra in a village, timing its appearance with the abandonment of the old grist mill to which each farmer carried his small portion of cereal for primitive grinding. There seemed to be a striking coincidence of the disease with the adoption of modern errors in milling and cooking."

Effect of the Milling Process on Maize.

It was in consequence of Goldberger's influence and work that Dr. Wood undertook to view pellagra from the standpoint of beri-beri as a deficiency disease. He was at once attracted by the report of P. A. Nightingale, published in 1912, on the occurrence of what there could be no doubt was pellagra among prisoners in a gaol in Rhodesia, attributable to the replacing of the normal diet of hand-ground maize (ropako) by commercial "mealie meal." It was realised that this change was the responsible cause of the outbreak, and, as soon as a return to "ropako" was made, the beneficial result was "immediate and magical."

Impressed by this report of Nightingale's, Dr. Wood set out to learn to what extent maize suffered in the milling process. He found that in the modern steam milling the grain was degerminated—i.e., deprived of the germ, which was later ground separately, and, with the bran, sold as cattle food, having a great reputation as a milk-maker. The reason given for the modern plan of milling was that if the grain was milled without separating and removing the fat-containing germ, the resulting product readily became rancid; for the germ of maize, being quite soft and poorly protected, was the first to suffer if deterioration occurred. Dr. Wood made allusion to the belief of Lombroso that pellagra was due to a toxicity arising from the destructive action of various moulds on the essential portion of the grain, and expressed the opinion that if Lombroso had substituted the word deficiency for toxicity he would have been in close accord with many modern views.

Pellagra Considered from the Same Standpoint as Beri-beri.

Dr. Wood, in regarding pellagra from the ætiological standpoint of beri-beri, recalled the work done in the Philippines, which showed that phosphoric acid (P_2O_5) was a reliable indicator of antineuritic substance in the experiments with polished rice and beri-beri. With this in mind, he found that the commercial maize germ product contained 1·15 per cent. of P_2O_5, and specially milled germ often as much as 2 per cent. Per contra, maize milled in Ohio contained only 0·29, and when ground in toto, with no removal of germ, the grain yielded 0·78 per cent. P_2O_5; further, bearing out the occurrence of the antineuritic substance in the cortical portion of the grain, their analyses showed that bran portions of wheat contained 0·98 per cent. of P_2O_5, while average wheat yielded only 0·14 per cent.

It was noted that the bran and germ portion richest in P_2O_5 and antineuritic substance are those rejected in the modern milling process and converted into cattle food. Experiments similar to those undertaken with polished rice, but with the substitution of degerminated corn, were made on pigeons and resulted in the production of droopiness, loss of feathers, and a red-legged condition, somewhat analogous to the polyneuritis gallinarum caused by polished rice. This condition was relieved by administration of good maize, also by the alcoholic extract of the germ of maize, and, in almost as striking a manner, by means of fresh cows' milk.

From his experiments Dr. Wood was led to suspect that the deficiency was one of water-soluble B rather than of fat-soluble A. Applying this to the treatment of pellagrins, he considered that the deficiency could be more readily remedied by giving milk, fresh vegetables, and meat, by the consumption of the whole cereal without removal of the germ, also by avoiding the use of bicarbonate of soda as a rising agent, it having been found that the balance between acid and alkali in many baking powders was one very crudely struck.

The question was not so much of the particular cereal at fault, as of the portion removed in the process of milling, and applied equally to wheat as to maize; and although nutritional errors—a too low protein level or a too low biologic protein—without doubt played a large part in the ætiology of pellagra, yet Dr. Wood could not exclude the possible influence of an infectious element in playing a secondary but not less important rôle. In the light of the observations of Enright, Jobling, the Thompson-McFadden Pellagra Commission, McCullum, and Sambon, he considered that the problem of pellagra could not yet be regarded as solved.

Discussion.

The PRESIDENT welcomed Dr. Wood's valuable contribution to the study of pellagra. He drew attention to the possibility of a dual ætiology from an infective source as well as a nutritional deficiency, and compared the instances of tuberculosis and leprosy, in which dietetic deficiency or error may be associated with a microbic cause.

Dr. P. H. MANSON-BAHR gave support to the views of Enright and Bigland. He claimed that too great stress had been laid on the food-deficiency theory as the main cause of the disease, and held that the theory of infectious origin was effectually disproved. Food deficiency, he maintained, did not explain the occurrence of the 65 cases of pellagra among 70,000 German prisoners in Palestine and Egypt who had suffered no previous food shortage, many of them in good physical condition, not afflicted with dysentery or malaria. He asked why, if pellagra was due to a food deficiency, there had been no cases in Austria, where tuberculosis and rickets were so rife as the result of food shortage. He suggested as a possible explanation of the occurrence of pellagra in Egypt, especially among well-fed German prisoners, the action of a toxin peculiar to the endemic areas in Egypt affecting the endocrine glands, and particularly the suprarenals, which, together with the sympathetic system, bore the brunt of the disease. In making this suggestion he drew attention to the similarity of pellagra and Addison's disease, as well as to the resemblance between the intestinal lesions of sprue and pellagra.

Colonel S. P. JAMES sought explanation of the seasonal variation of pellagra if the latter were due to diet deficiency, on the ground that the diet remained the same, irrespective of the season, in pellagrins. He pointed to the possible influence of sunshine, in that there existed a close agreement between the maximum of sunshine and the greatest incidence of pellagra. The highest peak of the charted hours of sunshine was found invariably to be a month in advance of the highest peak of pellagra cases, and similarly the secondary peaks of the two were found to agree to a corresponding extent. If a second element existed in the causation of pellagra he seriously questioned its being an infective agent.

Dr. H. S. STANNUS, with reference to seasonal influence, regarded the association of maximum sunshine and pellagra only to hold good in so far as the skin lesions were concerned, and that the influence of sunshine had no bearing on other aspects of the disease. He referred to his experiences in Central Africa and mentioned that, though some food deficiency was a factor in the production of the disease, among gaol prisoners there were certain who suffered from pellagra without having eaten maize, yet others who ate maize remained free from the disease.

Lieutenant-Colonel P. S. LELEAN, R.A.M.C., supported food deficiency as the main cause. He referred to the conditions prevailing among Turkish prisoners from Gallipoli and Syria, and the absence of any source of infection in the towns of Syria, where the disease was unknown to Syrian civilian doctors. Among a batch of 400 prisoners who had experienced considerable food shortage there had been 279 cases of pellagra, which subsequently, under the influence of improved conditions in the prison camp, had dropped to 27. Similarly, in the Armenian refugees' camp, as the result of short rations, pellagra occurred, but later disappeared on the improvement of the food-supply. The striking contrast presented by the adjacent prison camps at Maadi, the one with 6000 Turks and many cases of pellagra, the other with 2000 German prisoners in good physical condition and presenting no cases of pellagra, could only be accounted for by a difference of diet. The occurrence at a subsequent date of 65 cases out of a total of 70,000 German prisoners, he maintained, could be explained on the score of a food deficiency, by the effect of heavy work when on a light diet calculated as sufficient to meet the ordinary demands of life, also by the failure of extra supplies, which had at first been met through charitable agencies on behalf of prisoners, but had subsequently not been forthcoming in the later period of the war. The deviation of the biological protein of the light diet in response to the increased demands of heavy work,

even if digestion and assimilation were correctly balanced, would, he considered, create a deficiency sufficient to account for the occurrence of pellagra.

Dr. W. H. WILLCOX and Dr. T. P. BEDDOES also took part in the discussion, the latter drawing attention to the variation of the skin lesions as the result of exposure to heat, the most exposed areas—e.g., the back of the hands, the front of the knees, and instep—suffering most often. He also referred to the seasonal variation of the disease in its possible influence on the production of skin and digestive lesions, and, in advanced cases, of mental disturbances.

Dr. WOOD, in his reply, stated that he viewed the whole problem of the ætiology of pellagra with an entirely open mind, and could offer no clear solution. Although in the main he had relied on Goldberger's work, which accorded with the report of the Committee in Egypt, as affording the most probable explanation of the disease, he admitted there were still unexplained links in the chain of its ætiology. The seasonal variation of pellagra as it affected the skin, the digestive and nervous lesions, presented difficulties of elucidation, and was not yet understood. The skin lesions were only a part of the disease, and were known definitely to occur in some cases in parts of the body free from exposure to sunlight or heat, although the typical distribution in portions exposed to their influence were the most common, suggesting the resemblance of the susceptibility of the skin surface to the sensitivity of a photographic plate. In America pellagra, as with beri-beri, was regarded as a food-deficiency disease, and had therefore largely become an economic problem when dealing with numbers of cases, such as 20,000 in the State of North Carolina, and 150,000 in the whole of the United States.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

A MEETING of this newly-formed society was held on May 17th at 122, Harley-street, Dr. JANE WALKER, the President, being in the chair. Twenty-nine new ordinary members and 19 associate members were elected. Dr. H. O. BLANFORD (Midhurst) and Dr. VERE PEARSON (Mundesley) were elected to two vacancies on the executive committee.

Dr. LEONARD HILL, F.R.S., opened a discussion on

The Physiological Principles Involved in the Ventilation and Heating of Tuberculosis Institutions.

He first showed that the effects of bad ventilation were not produced by the excess of CO_2 or by diminution of the percentage of oxygen in the air. Workers in submarines could easily stand up to 3 per cent. of CO_2 without discomfort, while in the high Alps the oxygen might fall to 17 per cent. or less without affecting the health of the mountain-dwellers. Similarly the theory that obnoxious organic matter in exhaled air was at fault was exploded. There was the clearest evidence that the physical properties of the atmosphere had a great influence on the physiology of the body, and the determining factors in good ventilation were the coolness, the movement, and the dryness of the air. The drying power of the air was very important, but in measuring it the ordinary thermometer was a poor help. Dr. Hill described his special thermometer, the kata-thermometer, and showed how cool air of low humidity breathed in through the nose is raised to a constant temperature at the back of the nose by means of the increased flow of arterial blood through the mucous membrane. In addition there was a greater flow of lymph which evaporated. These might be increased as much as five or ten times by exercise in the open air. The drier the air, within limits, the better. The greater the vascular activity of the nose the greater was the power of resisting disease; hence the resistance of outdoor workers to respiratory diseases. Apart from influenza, our soldiers and sailors in the war were singularly free from respiratory diseases. The drying power of the skin was of great importance, since through its cooling power the skin controlled the metabolism of the body. Cooling of the skin by outdoor life might double the metabolism during rest, while with exercise it might increase it five or more times, with concomitant improvement of appetite, of assimilation of food, and of elimination of waste and harmful products.

The discussion was continued by the PRESIDENT, Dr. JAMES WATT, Dr. MARCUS PATERSON, Dr. W. C. FOWLER, Dr. NOEL BARDSWELL, Dr. P. W. EDWARDS, and Dr. BLANFORD.

In replying to questions and points arising in the discussion, Dr. HILL stated that people should wear as little clothing as possible, and that the temperature of the cheeks largely ruled metabolism. It was the absolute and not the relative humidity of the air which mattered. It was preferable to keep patients indoors rather than to expose them to wet mists. Fans could not be used too much for combating fever in warm weather. With regard to heating, the ideal conditions were to use the radiant heat of the sun. In ordinary dwellings steam-pipes tended to heat the air at the ceiling and to leave the air near the floor as much as 10° colder. It would be better to reverse the position. If the feet were warm, one could stand any amount of cold air. It was not harmful to have different parts of the body under different conditions of temperature. Such differences kept up the nervous tone, avoided monotony, and acted as a stimulant. He commended the practice of many sanatoriums in shutting up and heating by radiators rooms when empty, and later making use of the radiant heat stored in the walls when the rooms had to be opened up for patients. Dr. Hill intimated that the practical questions of clothing and of heating in open-air institutions would be dealt with in a forthcoming publication of the Medical Research Committee.

The PRESIDENT'S motion to approach the College of Nursing regarding a remission of part of the period of their general training in the case of nurses trained under proper conditions in sanatoriums was withdrawn in favour of an amendment to appoint a commitee to consider and report on the whole question of the training of nurses for the treatment of tuberculosis.

Dr. MARCUS PATERSON opened a discussion on

The Relative Value of Butter and Margarine in the Treatment of Tuberculosis.

He believed that in institutions where margarine was used the necessary supply of the fat-soluble A vitamine was quite well obtained from cod-liver oil or from milk, as well as from the animal fats of meat, bacon, and dripping. In most institutions 14 pints of milk were consumed per patient per week, and this contained the equivalent of from 10 to 12 ounces of butter.

The discussion was taken up by Dr. FRANCIS CLARK, Dr. ESTHER CARLING, Dr. A. C. TA'BOIS, Dr. W. G. KINTON, Dr. H. E. WATSON, Dr. BLANFORD, and Dr. W. GOODCHILD. Several expressed the opinion that there was more indigestion with margarine than with butter, but one speaker thought the want of freshness of the margarine was responsible for this. The practice of some institutions in giving butter on Sundays "as a treat" was criticised as inconsistent. On the whole, opinion was strongly in favour of the use of margarine in place of the more expensive butter where milk or cod-liver oil formed part of the dietary of the patient.

Two motions were postponed till the next meeting one by Dr. CARLING encouraging institutions for the treatment of tuberculosis to employ ex-patients upon their staffs being strongly opposed by Sir HENRY GAUVAIN, who was unable to be present at the meeting.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this association was held on May 18th, at 11, Chandos-street, W., Mrs. FLEMMING, M.D., the President, being in the chair.

Dr. SIBYL I. WELSH read a paper on

The Nervous System and the Endocrine Glands.

She said that Hughlings Jackson had described the development of the nervous system in man as taking place at three

levels: the vegetative or autonomic, the sensori-motor, and the psychic. On the *psychic* level, the receptors, through which man receives impressions, are the sense organs of sight, hearing, taste, and smell, and it is through these that he comes into relation with the distant external world. By association fibres in the cerebral lobes he gains the power of balancing knowledge with emotion, and intuition with instinct, knowledge and intuition tending to be individual as compared with emotion and instinct, which are racial and shared by his kind. At this level he becomes an individual member of a herd. On the *sensori-motor* level the body has acquired the power of balance and progression through space, coming into contact with externals through the skin receptors of touch, pain, heat, and cold, and acquiring self-control through its proprio-receptive system, whose centres are in the labyrinth, and through the cerebellum, which receives and coördinates all the impulses of sense of position and movement. At this level he becomes an individual, and is able to move about. On both the psychic and the sensori-motor levels the controlling nervous mechanism is a centralised one, and control is conscious as well as subconscious. On the *automomic* level centralised control is no longer essential. This level governs the most primitive reactions, of nutrition, reproduction, and self-defence, and at this point the organism is a mere existence without individuality or sociability. In man this level is represented by the mutually antagonistic sympathetic and para-sympathetic nervous system, and their working is not merely subconscious, but it is unconscious. Developmentally this nervous system is not centralised, and in the lowest vertebrates the place of the sympathetic cells is taken by masses of chromaffin cells. In man these cells are chiefly found in the suprarenal medulla, and are derived developmentally from the same mass of cells which gives rise to the sympathetic ganglion. This shows how an organ which deals with the chemical type of stimulus progresses into an organ producing the higher type of nervous stimulus, and that below the level of the most simple type of nervous control there is a set of systems of chemical control—a set, in fact, of endocrine glands. There is thus a digestive system of chemical control affecting the secreting glands, a reproductive system bringing into functional coöperation the remote sexual glands, and a system influencing growth and development. The active principles of the endocrine glands are comparatively simple, and identical for all animals, and in the case of adrenalin it has been prepared by chemical methods outside the body. They either stimulate cell activity—the hormones—or depress it—the chalones—and a name which includes both kinds is autocoid.

There are three main groups of endocrine glands, the thyro-parathyroid group, the suprarenal, and the pituitary. The effects of adrenalin has been most worked out; its action is upon the tissues innervated by the sympathetic nerve-endings only, and not on those innervated by the parasympathetic. Dr. Welsh then described the distribution and functions of the two divisions of the sympathetic nervous system, stimulation of the sympathetic producing means of defence, and stimulation of the parasympathetic promoting nutrition. She referred to the treatment of deficiency diseases by gland extracts, with special reference to cases of slight hypothyroidism in elderly women, and to the increase in exophthalmic goitre since the war. She suggested that as there was anatomical evidence of a double control, chemical and nervous, of the endocrine glands, there might be a possibility of a double form of treatment, one form being to restore nervous control by psycho-therapeutic measures. She gave an instance of an advanced case of diabetes where very striking improvement resulted from such treatment.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this society held on May 12th, with Dr. I. WALKER HALL, the President, in the chair, Dr. R. H. NORGATE read a paper on

The Effects of the War on the Mental Condition of the Citizens of Bristol.

The paper was based on a study of almost 3000 patients admitted to his care at the Stapleton and Eastville Institutions during the war. The main argument of the paper was that the rate of admission of these patients could be correlated with the rise and fall of mental stress and anxiety occasioned by the course of public events. This was illustrated by a series of charts. In addition, Dr. Norgate showed how the war had coloured the mental processes of the insane. One interesting point was the much higher incidence of melancholia in women, a fact which he explained by reference to the peculiarly trying, and anxious, and lonely life led by so many women of the working classes during the war. Many lessons of practical value for the future were drawn from these war experiences. One was the need for sympathetic handling of borderland cases. To this end he advocated hospital and not asylum treatment. He spoke with warm approval of the work done on behalf of women workers by those who were before the war militant suffragettes. Dr. Norgate commended work on the land as a means of providing wholesome mental occupation, as work on allotments during the war had had excellent psychic results.—Dr. L. E. V. EVERY-CLAYTON, the President-elect, said that to the influences of heredity and stress in the causation of mental disorder must be added that of malnutrition.—This remark was expanded by the PRESIDENT in some remarks introductory to the next paper, which was read by Dr. J. A. NIXON, and entitled,

Famine-dropsy as a Food-deficiency Disease.

Dr. Nixon said that famine-dropsy had been known for several centuries, and had reappeared in the Great War under various names, such as war œdema and hunger œdema. British physicians had met with it chiefly in returned prisoners of war. It had been widespread, however, in prison camps in Germany and amongst civil populations where food shortage was acute. The first clear differentiation of famine-dropsy was made by Cornish, in the Indian famine of 1877–78. But even after that date and well on into the war confusion existed between the dropsies of scurvy, beri-beri, ankylostomiasis, and pellagra, as well as cardiac, renal and inanition dropsies. The clinical picture of famine-dropsy was now clear and might be defined as a form of œdema produced by prolonged underfeeding on a diet deficient in protein and caloric content, with an excess of fluid. Four cardinal symptoms characterised the disease: œdema, polyuria, bradycardia, and asthenia. There was, moreover, a remarkable absence of certain signs and symptoms, namely: albuminuria, cyanosis, dyspnœa, and cardiac dilatation, also the nerve changes of beri-beri, the skin changes of pellagra, and the spongy gums and hæmorrhages of scurvy. In the blood and urine there was a hypo-albuminosis, with increased ammonia, nitrogen, and kreatin; lipoids were greatly decreased in the blood. Post mortem there was a total absence of fat in the body. As regards pathogenesis, the whole problem of œdema formation was little understood. McCarrison's suggestion that excess of adrenalin might be a factor in the production of œdema in general must be borne in mind. It seemed clear that famine-dropsy was not an avitaminosis; and experiments tended to show that it was not due to the absence of a single food factor. Dr. Nixon drew a comparison between the modes of production of certain food-deficiency diseases in the following schematic form:—

Scurvy.	Beri-beri.	Pellagra.	Famine-dropsy.
Deficiency of— Water-soluble C. Fat-soluble A.	Deficiency of— Water-soluble B.	Protein-deficiency + toxin (unknown) + sun-exposure.	Calorie-deficiency (? fat-deficiency) + protein-deficiency + water excess.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. PAUL SOLLIER read a note on the Chemotherapy of Morphinism, in which he alluded to the recent communication by Dr. Brissemoret and Dr. Challamel, who had suggested a demorphinisation cure by berberine and helenine.[1] Dr. Sollier maintained that it was a mistake to suppose that substitutes for opium or its derivatives existed. All the preparations advertised as substitutes were found on analysis to contain a more or less considerable degree of morphine or a more dangerous derivative of opium.

Dr. GEORGES ROSENTHAL read a paper on Serum Treatment by the Intratracheal Route, preceded by the Formation of a Tracheal Fistula and Intubation. The method was carried out as follows. After local anæsthesia by intratracheal injection of 2–10 c.cm. of novocaine and adrenalin, an injection of serum was made either in the intercricothyroid space with a specially curved needle if few injections were to be given and at long intervals, or, if numerous and frequent injections were required, through a 1 mm. tube and a tracheal fistula. In children intubation might be performed, and the injections made through the intubation tube. The very slight risk of anaphylaxis could be avoided by the use of Besredka's method.

Dr. MAURICE FOURRIER reported a case of Lethargic Encephalitis treated by neosalvarsan. The patient was a girl, aged 17, with typical symptoms of the disease. No benefit was derived from administration of urotropine, but immediate improvement followed an intravenous injection of 0·30 cg. neosalvarsan, and became more pronounced after

[1] THE LANCET, April 3rd, p. 771.

two more injections. Complete recovery ultimately took place.

In a note entitled "The Site of Election for a Fixation Abscess is on the Arm, Behind the Posterior Division of the Deltoid," Dr. FÉLIX REGNAULT stated that the chief advantage of a fixation abscess in this situation was that the pain was very slight, being less than that of a large blister. This was due to the fact that the injection involved only the terminal ramifications of the cutaneous branch of the circumflex nerve, whereas when the fixation abscess was in the thigh the branches of the anterior crural nerve supplying the knee and leg were affected. Moreover, a fixation abscess in the deltoid region remained localised and did not show a tendency to cause extensive necrosis like the fixation abscess in the thigh.

MONTPELLIER: RÉUNION OBSTETRICALE ET GYNÉCOLOGIQUE.

AT recent meetings of this society the following communications were read.

M. DE ROUVILLE, on the Systematic Scooping Out of the Cervical Stump in Subtotal Hysterectomy. The author urged this procedure, as it presented all the advantages of the total and subtotal operations without the disadvantages of either. The disadvantage of the subtotal operation in inflammatory cases was that an infected cervix was left behind, whilst in fibro-myoma cases malignant degeneration of the cervix is certainly not negligible. M. de Rouville has observed three unpublished cases. By the hollowing-out operation the cervical stump is reduced to a single shell of some millimetres thickness, and all the drawbacks justly attributed to the subtotal operation disappears. The disadvantages of total hysterectomy are the possible risks of sepsis owing to the vagina being opened up and the real risk of hæmorrhage. The operation described by the author avoids these two risks, and he states, lastly, that by this operation the normal anatomical arrangements of the vaginal roof and pelvic floor are not disturbed.

M. VALLOIS described two cases of Pregnancy complicated by Cicatricial Narrowing of the Vagina. The constriction may be "caniculaire ou annulaire," and an anæsthetic may be required for diagnosis owing to the difficulty of examination of these cases. If the narrowing is caniculaire and rigid extraction during labour should be by the abdominal route—Cæsarean section followed by subtotal hysterectomy. The membrane-like annular stricture is easily dilutable, and permits delivery by the natural passages unless there are marked pelvic obstacles.

M. TEDÉNAT discussed Hæmatosalpinx in the light of four cases which he had observed. Although this condition is generally due to tubal pregnancy it may be due to hæmorrhagic salpingitis, as proved by microscopic sections which showed no decidual cells, no cotyledons, and no erosion of the mucosa. Of the four cases reported by the author three were of this variety, and in the fourth tuberculous salpingitis was found.—In the discussion which followed M. DE ROUVILLE described a similar type of case where obstruction of the adnexal circulation was sufficient to explain the condition. Several sections are essential for accurate diagnosis in these cases.

M. VALLOIS and M. MADON read the notes of a case where induction of premature labour was practised for habitual death of the fœtus, a live child resulting. None of the usual causes of this condition could be found, and all that could be detected was a faint albuminuria in the last days of pregnancy. This disappeared rapidly in the puerperium. In the discussion which followed M. VALNALE, after recalling the discordance between certain light and transient albuminurias and their gravity to the fœtus, said that since the war 50 per cent. of the population in certain centres (e.g., Marseilles) suffered from syphilis, and he predicted that in two generations this percentage will be universal.—M. DELMAS urged the importance of examining the father when the examination of the mother was negative. The good effects of treatment confirmed the importance of this line of examination.

M. DELMAS described two cases where blood transfusion was urgently required, and in the absence of special instruments the author utilised the needle of a spinal anæsthesia apparatus with the happiest results. Citrate solution was used to prevent coagulation of the donor's blood. Lubrication of the trocar with vaseline and only allowing citrated blood to flow through the needle prevented coagulation in the needle itself.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—The fifth annual meeting of the Council will be held in the Barnes Hall of the Royal Society of Medicine on Monday, June 7th, at 5 P.M., Lord Sydenham in the chair. The meeting will be addressed by Viscount Astor.

Reviews and Notices of Books.

THE PHYSIOLOGY OF VISION.
With Special Reference to Colour-Blindness. By F. W. EDRIDGE-GREEN, M.D., F.R.C.S. London: G. Bell and Sons. 1920. Pp. 280. 12*s*.

THE EDRIDGE-GREEN CARD TEST FOR COLOUR-BLINDNESS. Same publishers. 1920. 25*s*. net.

THE physiology of vision presents several problems as yet unsolved or only partially solved, and this is not to be wondered at when we realise, first, that the relation of the different elements in the minute structure of the retina to the functions that they subserve is still a matter of debate, and secondly, that many of the problems in question—such, for instance, as those relating to binocular vision or those relating to colour contrast—are admittedly psychological problems, the solutions of which depend on the subjective experience of individuals rather than on physical demonstration. To illustrate this the different explanations of what is known as Purkinje's phenomenon may be cited. The phenomenon consists in the variation of the luminosity of different colours according to the brightness of the light in which they are seen, the relative luminosity of red diminishing, and that of blue increasing as the illumination is diminished. Now, according to some observers this phenomenon does not occur if all the rays are cut off save those that are focussed on the macula, and since the structure of the macula differs from that of the rest of the retina in that cones alone without any rods are found there, von Kries has used this argument to support his theory that the rods and the cones represent two different apparatus for the transmission of visual impulses, the one used only in the dark, the other only in the light. Dr. Edridge-Green, however, finds that the absence of Purkinje's phenomenon at the macula does not in all circumstances hold good, and uses his interpretation of the facts to support his theory that the visual purple is the true visual substance, that it is produced by the pigmented epithelium in combination with the rods, and under the stimulus of light is diffused into the fluid which surrounds the cones, imparting to them the vibrations which give rise to nervous impulses.

Dr. Edridge-Green's book is mainly concerned with the problems of colour vision and colour-blindness, and he is now such an acknowledged authority on these subjects that all that he says about them deserves most careful attention. We could wish, however, that the lucidity of his explanations was equal to what we believe to be the essential soundness of his views. As it is, we should recommend any reader of this volume, who is not very familiar with the subject, to have beside him the author's previous work, "Colour-blindness and Colour-perception,"[1] in which much that is somewhat obscure in the present volume will be made plainer. The gist of Dr. Edridge-Green's theory is the removal of the colour-discriminating faculty from the retina, where the theories of Helmholtz and Hering would place it, to the brain, where he postulates a centre for the distinguishing of colour higher up than that for distinguishing form. The number of colours that we are able to distinguish depends on the extent to which this colour centre is developed, the dichromic being able to distinguish only two, and these the furthest apart in the spectrum, the trichromic three, and so on, most of us having arrived at the stage of distinguishing six definite colours, while the exceptional individual is able to distinguish seven. So far the theory is easy to grasp. The distinction is further drawn between "approximate psycho-physical units" and "absolute psycho-physical units," the former corresponding to the number of different colours seen and the latter to the number of absolutely monochromatic divisions seen in the spectrum. The latter units for any individual may be about three times as numerous as the former. This part of the theory is somewhat harder to grasp, but if we understand it aright an

[1] International Scientific Series.

analogy might be made with the sense of hearing. The number of different notes in the octave recognised by the majority of people is 12, and when a song is sung these 12 notes are employed. The musician with a "good ear" is able to tell whether any note is sung truly or whether it is sung too sharp or too flat, and the more highly his sense of hearing is developed the more minute is the difference in tone that he can detect. We suggest that the 12 notes correspond to Edridge-Green's "approximate psycho-physical units," and the total number of differences that anyone can detect by comparing different tones heard in succession to his "absolute pyscho-physical units." However this may be, the psychic theory of colour vision appears to fit in far better with observed facts than either of the older theories. An obscurity which needs explaining is the occasional existence of colour-blindness varying in degree in the two eyes of the same individual. Such a case is given with much detail in Dr. Edridge-Green's former book (pp. 196–203), and his theory is obviously incomplete until it is explained. Besides the degree of development of the brain centre, it would seem that there must be some variability in the retinal apparatus by which the light waves that cause the sensation of colour are transmitted as nervous impulses, and that this may be different in the two eyes. Such an explanation is hinted at by the use of the phrase "retino-cerebral apparatus," but it is not worked out. However incomplete the book may be, it is the work of an original thinker, and will be found to be essential by those interested in the subject.

The Edridge-Green card test has been devised to meet the demand for a simple, portable, and comparatively inexpensive test for colour-blindness. The wool test, we are told (and the statement can obviously be challenged) has fortunately become obsolete in all important examinations of vision, for not only did it utterly fail to detect more than 50 per cent. of the dangerously colour-blind, but also rejected many normal-sighted. The principle involved in the card test is the perception of difference between two colours presented in a special diagram of spots of irregular shape and various tones. On a ground of separate spots of one colour a letter is formed in spots of another colour, and each card in the series is specially devised with the object of detecting some special form or degree of colour-blindness. The cards are contained in a neat leather case, and form by far the handiest test for colour-blindness with which we are acquainted.

PRINCIPLES OF HUMAN PHYSIOLOGY.

Third edition. By ERNEST H. STARLING, C.M.G., F.R.S., Jodrell Professor of Physiology in University College, London. London: J. and A. Churchill. 1920. With 579 illustrations, 10 in colour. Pp. 1315. 25*s*.

THE second edition, which we reviewed in our issue for July 24th, 1915, is followed by a worthy successor, in which are incorporated such advances as physiology has made during the five years of war. There are to be found a number of alterations, especially in the latter half of the work, and the book itself has been increased in size by 50 pages. The chief changes are in the section on the sense organs, which has been revised and largely rewritten by H. Hartridge, M.A., M.B. Camb., who is entirely responsible for the new section on vision. The domain of physiology has become so extensive that it is difficult for a single author to be master of all its multifarious departments and advances, especially when the calls of war duty have absorbed much of his time. Some of the changes and omissions have resulted in discarding methods of proved utility. The principle of testing visual acuity is laid down, but we failed to find the familiar phrase, "Snellen's test types," mentioned as such in the previous edition. All reference to the phakoscope and Sanson-Purkinje images seems to be omitted. Even Scheiner's classical experiment, as well as the diagram to explain it, seems to have fallen out. The illusions referable to vision are hardly dealt with, and the old familiar Zöllner's lines have disappeared. A simple diagram showing the formation of an image on the retina would be useful. In connexion with the yellow spot, Clerk Maxwell's experiment for demonstrating its existence by means of a solution of chrome alum does not seem to find a place. On the other hand, the causes of night-blindness, which has come into prominence during the war, and the theories of colour-blindness are fully appreciated and discussed. Holmgren's test with coloured wools is recognised as only of historic interest, and Edridge-Green's lantern is figured and described. As to the numerous theories of colour-blindness, the author says, "there appears to be more in favour of Young's hypothesis than is to be found for its rivals. Further than that it is not at present advisable to go." Having regard to the importance of colour-blindness in its practical relations to daily life on sea and on land, he rightly adds, "no test can be too searching, and no border-line case should ever be passed; the risk is too serious." As to the theories of hearing, there is a relatively long account and analysis, with the conclusion "it would appear that the evidence in favour of Helmholtz's hypothesis is very convincing."

Among other new matter we notice a mention of Douglas's bag for determining respiratory exchange in man, the "spinal man," "destructive lesions of the cerebellum in man," "diabetes in man," "conditioned reflexes," the very effective exposition of diets, metabolism, the biological value of different forms of proteins and other foodstuffs. Accessory food substances are given the alternative name "or food hormones," the term vitamine being relegated to a footnote (p. 694). The "value of alcohol in a diet is entirely that of an accessory or adjuvant in exciting appetite by its taste and smell ....." The chapters on the heart are both illuminating and practical. Under heart reflexes Goltz's tapping experiment might have been added. On the very practical question of muscular exercise it is interesting to note that the margin of response in normal individuals may be 600 per cent.—i.e., over a moderate period of time the individual may increase his muscular work, his respiratory exchanges, and the rate of his circulation six times above that during rest. Perhaps some more details on the endocrine glands would have been useful, more especially as regards the thymus gland—e.g., status lymphaticus, the pineal gland, and cortex of the suprarenal glands.

Altogether this work is a solid, substantial, and illuminating exposition on quite independent lines of the present state of physiology by one who has added not a few important building stones to the superstructure itself. The whole constitutes a comprehensive and suggestive treatise rather than a mere student's text-book, and will be welcomed both by aspiring students and practitioners of medicine.

CHILD PHYSIOLOGY.

The Principles of Ante-natal and Post-natal Child Physiology, Pure and Applied. By W. M. FELDMAN, M.B., B.S. Lond. London: Longmans, Green, and Co. 1920. With 6 plates and 129 illustrations. Pp. 694. 30*s*.

THIS is an attempt to give, within the compass of a single volume, a complete account of the physiology of child life from conception to adolescence. It originated, the author tells us, in a course of elementary lectures on child physiology delivered at the Infants' Hospital in Vincent-square, where he is assistant physician and lecturer, for he was then led to realise the need for a summary of the investigations published in a host of journals of various languages accessible only to the few. The works of Russians, Germans, Austrians, Frenchmen, Americans, and Italians have been put under contribution, while anatomy and morphology are given a place only so far as these are necessary for a proper understanding of the physical and physico-chemical processes with which the book essentially deals.

The first portion of the book takes up ante-natal physiology, starting from the germinal cells, the nature of hereditary processes, and the at present accepted laws of heredity, leading on to the mechanics of development and a description of the general physiology of pre-natal development and metabolism. The fœtal systems are then taken seriatim, nutrition, circulation,

respiration, and so on. Then follow chapters on the physiology of pregnancy, of birth, and of the neo-natal period, with a similar analysis of post-natal functions. A final chapter is devoted to the anatomical and physiological peculiarities of the premature infant.

If the picture is an impressionist one the fault lies with the subject and not with the author. It is, in fact, his peculiar merit that he has defined the limits of our ignorance, which is in ante-natal matters almost abysmal, as well as the limits of our knowledge. Small portions of the subject have been intensively studied, as by Galton, Mendel, Camerer, Baginsky, and Ballantyne, but they scarcely as yet amount to more than oases in vast deserts of unexplored territory. To take an example, the author describes the mechanics of development of the vertebrate ovum through the stages of subdivision in three planes to the blastula and then to the gastrula, changes so far explicable in mathematical terms, only to break off at the stage when certain outgrowths occur which afterwards give rise to limbs and other organs. Here he has to admit our ignorance of what it is that turns the apparent chaos of the germinal globe into the orderly arrangement of the embryonic world. The constraining hereditary force, to use His's metaphor, cannot as yet be expressed in terms of mechanics or physics or chemistry.

Something of the author's industry is apparent from the references, often five or more on a page, to original articles and dissertations in as many languages, and from the index of names, which runs to at least a thousand items. It is good that at the present time, when child welfare work as a social and emotional movement is gaining such momentum, the groundwork should be thus ably set forth on which to build a superstructure of preventive and remedial method with some prospect of success.

A MANUAL OF PRACTICAL ANATOMY.

By THOMAS WALMSLEY. In three parts. Part I., Upper and Lower Limbs. With preface by THOMAS H. BRYCE, M.A., M.D. London: Longmans, Green, and Co. 1920. Pp. 176. 7*s*. 6*d*.

AT a time when books are getting longer, the numbers of subjects increasing, and the time at his disposal getting shorter, the student may welcome an honest effort to lighten his labour by reduction of the amount of printed pages through which he has to find his way in the course of his work. The preface by Professor Bryce indicates the aim of the author of this book to provide a "directory of dissection," with the aid of concise descriptions to guide personal observations. Hence the directions are printed in larger type than the descriptive matter. The aim as outlined is a praiseworthy one, but it is very doubtful if as much can be said for an effort to indicate the amount of knowledge that may be expected from the student, which would appear to be a further aim in the work. There is no item of knowledge in descriptive anatomy which—provided one knows it—may not turn out to be of some practical value in clinical work, to-day or to-morrow or 20 years hence, and experience shows that the fear of any student learning or knowing too much is quite without foundation.

Professor Walmsley's introductory chapter is short but useful and to the point; it might be suggested that a brief account of the use and meaning of fixed terms of position could be added with advantage. The directions and descriptive matter are clearly put, and appear to be adequate for their purposes. It is understood, of course, that the practical work is carried out under the direction of demonstrators, and the description is only a guide to observation, to be extended by fuller teaching. The figures are simple and schematic, and will without doubt prove useful to the dissector. But attention must be called to certain faults in these drawings. Thus, Fig. 6 might give a wrong impression about the attachments of the axillary sheath; Fig. 22 is wrong in essential details: Fig. 41 shows the main vessels out of place and the semi-membranosus partly deficient; Fig. 42 seems to put the insertion of the adductor magnus on the lower part of the articular condyle; and in Fig. 47 the relation between the short extensor and the annular ligament is not that usually found. It is interesting to note that the terminology used is not of the B.N.A., though it is not exactly that of English anatomy: the clumsy "collateral" is used for ligaments, presumably because of the use of the words "lateral" and "medial" in place of the old "outer" and "inner," and practically the only other differences, in the present part at any rate, are to be found in the names given to certain cutaneous nerves. The cutaneous nerves of the upper limb do not seem to be very happily named, and, in the case of the front of the thigh, confusion might possibly arise in the mind of a student whose teachers made use of the older terms of position. Incidentally, it may be pointed out that it is more correct to refer to the angle of Louis than to name it after Ludwig; it is a very small point, but there is no virtue in a Teutonic sound, per se. Although it has been necessary to call attention to certain weak places in the book, it leaves a good impression on the reader, and its simple and clear style, with its practical character, will give it a place among dissecting manuals in everyday use.

OCCUPATIONAL AFFECTIONS OF THE SKIN.

Second edition. By R. PROSSER WHITE. London: H. K. Lewis and Co. 1920. Pp. 360. 25*s*.

OCCUPATIONAL affections of the skin have a legal as well as a medical interest, owing to the inclusion in the schedule to the Workmen's Compensation Act of diseases for which compensation is payable, of dermatitis and ulceration of the skin produced by dust or liquids. Skin affections occur in association with scheduled diseases, such as poisoning by mercury, arsenic, trinitrotoluene, aniline; or as distinct entities, for example, among those who manipulate tar, pitch, paraffin, soot, or chrome. Practitioners working, as the majority do, among industrial populations require definite information as to the occurrence and causation of skin affections which they see in their daily work. In order to meet this need Dr. Prosser White, who had already for many years made a specialty of the subject, five years ago brought out a manual. Apparently, the book met a definite need, as we now have before us a second edition, not only brought up to date, but enlarged, containing several useful new illustrations and much additional matter.

The author has set himself the task of compiling from literature reports upon and references to skin affections of industrial origin. He has amassed a wealth of detail and information, and has then grouped it by occupation. We incline to the view that grouping either by lesions or causation would have been more useful, and would have allowed the author more scope for thought. Facts, however numerous, unless arranged in suitable order, do not advance knowledge; "we must, therefore, form tables and arrangements of instances, in such a method and order that the understanding may be able to deal with them," said Bacon, and his advice should still be heeded. As the book stands, the personality and thought of the author lie hidden behind the facts quoted, and seldom peep through. The book is in consequence rather an encyclopædia of data than a contribution to the elucidation of underlying physical or chemical influences which give rise to similar lesions. An instance may be given. A reader by careful search through the volume may discover that workers exposed to bichromate of potash may sustain: (1) perforation of the nasal septum; (2) characteristic indolent and painful ulcers on the knuckles and sides of the finger-nails; and (3) erythema and dermatitis of exposed areas of skin; and that common salt, lime, arsenical and other compounds can give rise to exactly similar lesions. He may be led to cogitate as to whether these similar lesions represent similar reactions on the part of the tissues affected to the agencies concerned, as to whether each agent possessing marked hygroscopic properties may not exert its influence by depriving the tissues of moisture, and as to whether he may not expect to find similar lesions from exposure to other hygroscopic substances.

The author of the book under review will give no aid here; he is content to state the facts and to suggest remedial treatment.

Modern medicine with its development of prevention seeks for generalisations, and we regret that a book compiled with such labour, and dealing with occupations where prevention is, comparatively speaking, easily attainable, should not deal with underlying principles. We have already mentioned that occupational dermatitis has a legal as well as a medical interest; but we are astonished that Dr. Prosser White has omitted all reference to this side of the question. Brought in contact as he must be in his daily work with compensation cases, his experience of the working of the Act, of its advantages and disadvantages, would have been of great interest and value to others. Further, an exposition of the law would have been of great help to busy practitioners meeting with cases, but ignorant as to how to proceed in the interest of their patients. Nevertheless this book must prove of great value, if only as a key to the literature of an interesting branch of industrial medicine; it is to-day the only book dealing with this subject.

LECTURES ON VENEREAL DISEASES.

By LEONARD MYER, F.R.C.S. London: Albany Press. 1919. Pp. 88. 6*s*.

THE educational schemes which have been initiated in order to instruct the public with regard to the nature and dangers of venereal disease have been many and various. The literary output dealing with venereology from the professional point of view has also been a large one. There exists, however, an intermediate and most important group of individuals for whom a comparatively small provision has been made; we refer to those who, although not members of the medical profession, yet do not belong to the ordinary lay public, such as nurses, midwives, masseurs, and others who are intimately brought into direct contact with these diseases in the pursuance of their professional avocations. It is important that such persons should possess a wise and proportionate view of the subject, together with a clear idea of their own limitations. Lectures have been given in various hospitals to nurses on this subject, but we are convinced that there are large numbers engaged in private nursing or employed in nursing homes who have never had the opportunity of attending any such courses. It is not remarkable, but much to be regretted, that an ignorant and unsympathetic attitude is assumed in many instances.

We heartily welcome Mr. Myer's endeavour to deal with this difficulty. He exhibits a due sense of proportion, an interesting style, and a clear method of exposition. We recommend his book confidently to members of the classes to which we have referred. But if he had treated the two diseases gonorrhœa and syphilis separately it would have been an advantage. And in another edition we hope the author will see his way to writing with even a greater degree of insistence upon the extent and dangers of ophthalmia neonatorum. A slip has been made as regards the relation of the peritoneum to the posterior wall of the uterus on page 30, which will no doubt also be corrected in a new edition. The book is certainly deserving of success.

DIE THERAPIE DER HAUT UND VENERISCHEN KRANKHEITEN.

Mit besonderer Berücksichtigung der Behandlungstechnik für Arzte und Studierende. By Professor Dr. J. SCHAEFFER (Breslau). Vierte vermehrte und verbesserte Auflage. Berlin: Urban und Schwarzenberg. 1919. With 87 illustrations in the text. Pp. 485. M.22.

AN excellent book, written for practitioners and students, this is a collection in book form of a series of articles, most of which appeared in the "Medizinische Klinik," and of notes written for post-graduate courses. The author is quite right in laying great stress on correct technique in the treatment of skin and venereal diseases, and in the first few chapters deals with the subject in a clear manner, giving full details at the same time. Abundant and distinct illustrations are most helpful in demonstrating the practical application of the directions given in the book. The skin diseases are treated alphabetically, a fact that makes it easy for the practitioner to find his needs.

It is surprising that diathermy and radium treatment, which of recent years have become so important, have been dealt with but casually, whereas X ray treatment and the application of actinic light are fully discussed. The last two chapters (150 pages) are devoted to venereal diseases. In the diagnosis of syphilis no mention is made of the Congo-red method, which has been proved to be superior both to Burri's method and the staining method of Giemsa. Although the author has greater faith in vaccine therapy than the majority of German authors, he has seen no benefit from this treatment in uncomplicated gonorrhœa, which is contrary to the experience of many observers. In complications such as prostatitis, epididymitis, arthritis, vaccine treatment has apparently yielded very good results in his hands.

Throughout the book many prescriptions are given, the price being mentioned also. That it was written during the war is apparent from the fact that substitutes for the prescriptions are frequently indicated. A useful discussion on marriage consent after gonorrhœa and syphilis will be found at the end of the chapters on these diseases. The fact that there have been four editions within four years is proof of its usefulness.

WITH THE 1/1ST LOWLAND FIELD AMBULANCE IN GALLIPOLI.

By G. H. EDINGTON, M.D., D.Sc., Colonel, A.M.S. (T.F.). Glasgow: Alex. Macdougall. 1920. Pp. 72.

THE WORK OF V.A.D. LONDON NO. 1 DURING THE WAR. Edited by STANLEY UNWIN. London: George Allen and Unwin, Ltd. 1920. Pp. 96. 5*s*.

THE sharing of new experiences is provocative of authorship, and the histories of various units, which have lately appeared, are of vivid interest to the members of the units themselves and sometimes to those outside the focus of experience. Colonel Edington writes the history of the 1/1st Lowland Field Ambulance which left England on June 5th, 1915, landed at Helles on the night of June 27th–28th, and stayed there until the final evacuation of the Peninsula on the night of Jan. 8th–9th, 1916, a six months' record of useful work with the usual alternation of excitement and drudgery.

The work of the V.A.D. No. 1 was necessary and valuable, and for that reason has a claim to reward. Mr. Unwin's lucid account of its doings may help in drawing attention to a branch of Red Cross activities which escaped much public notice at the time.

PHYSICAL RECONSTRUCTION AND ORTHOPÆDICS.

By HARRY E. STEWART, M.D., Captain, M.C., U.S. Army, Division of Orthopædics, Assistant Director, Section of Physiotherapy, Surgeon-General's Office, &c. New York: Paul B. Hoeber. 1920. Illustrated. Pp. 275. $3.75.

THE author describes this book as a condensed manual. Baking, hydrotherapy, and electrotherapy, being taken together, are only awarded 19 pages, while "massage" is disposed of in 33, including, in both cases, the free use of illustrations. It follows that the matter thus condensed is very elementary. The second part of the book, which deals with orthopædics, is equally condensed, and many important points are omitted. In the treatment of sacro-iliac strain, for example, no reference is made to Goldthwait's extensive and valuable work; and we look in vain for advice as to the treatment of Colles's fracture and of fracture-dislocations of the ankle after the stage at which deformity has been reduced. A chapter on foot-strain is, however, a marked contrast to the rest of the book (it occupies 24 pages), and is far the most useful part of the work. The book will indicate to those uninitiated in physical therapy the possibilities of treatment; it

will not guide them in prescription or performance. The illustrations are, for the most part, excellent, but those showing the electro-motor points (after Pariset) are lacking in clearness.

JOURNALS.

British Journal of Experimental Pathology. Editors: C. H. BROWNING, P. FILDES, W. E. GYE, E. L. KENNAWAY, E. H. KETTLE, J. MCINTOSH, J. A. MURRAY, W. J. TULLOCH, C. M. WILSON. London: H. K. Lewis and Co., Ltd.—The second number of this journal reaches a very high standard of excellence, upon which the contributors and editors are to be congratulated. If the same standard can be kept up, British contributions to pathology will have nothing to fear from comparison with the work of any other country. As will be noticed in the short summary of contents given below, the first critical review of a pathological subject is included in this number. The subject chosen is influenza, and we can think of no other condition more in need of critical examination.—The Value and Mechanism of the Colloidal Gold Test, by J. Cruickshank, M.D. This article is a timely contribution to a subject of great importance, upon which a considerable amount of work has been done, chiefly in Germany and America. The test is applied to cerebro-spinal fluid in cases of suggested syphilis of the central nervous system. It owes its origin to the work of Zsigmondy upon the influence of electrolytes on colloidal gold and the "protective action" of colloids. Lange applied Zsigmondy's work in testing the protective powers of normal and syphilitic sera, and later of spinal fluids. It was found that spinal fluid from cases of dementia paralytica has the property of precipitating the colloidal gold, and it is this reaction which has been recommended for diagnostic purposes. Dr. Cruickshank, who has evidently worked for some considerable time at the question, reviews very thoroughly the literature of the subject, describes how to prepare the reagents employed, and particularly the colloidal gold, and, basing his conclusions upon his own work, states that the "results of the colloidal gold test coincide with those given by the Wassermann reaction." There is evidence, however, to show that the gold test is the more delicate. The substance in the spinal fluid which reacts with colloidal gold is not dialysable and resides in the globulin.—The Experimental Transmission of Encephalitis Lethargica to a Monkey, by J. McIntosh and H. M. Turnbull. The authors give an account of the successful transmission of encephalitis lethargica to two monkeys. One animal was injected with an unfiltered emulsion of pieces of spinal cord and brain of a fatal human case of the disease, and the second with a filtered emulsion. The first animal was killed three weeks after inoculation, when it was in a drowsy condition. The second animal died two months after inoculation after an illness lasting, with remissions, seven weeks. The histological examination of the central nervous system of this animal is given in great detail, and beautiful figures are shown to illustrate the main lesions. There can be no doubt that the authors have been successful in transmitting the disease with material which has passed through a Berkefeld candle.—Conditions which are Conducive to the Production of Shock by Histamine, by H. H. Dale. The author shows in this paper that whereas histamine can be given intravenously to a cat in doses up to 10 mg. per kilo., without any severe or lasting effect, in animals under ether anæsthesia 1 to 2 mg. per kilo. produces fatal "shock." A large hæmorrhage similarly reduces an animal's resistance to histamine. Anæsthesia produced with nitrous oxide and oxygen does not lower the resistance to histamine.—The Comparative Oxygen Avidity of Normal and Malignant Cells Measured by their Reducing Power on Methylene-Blue, by A. H. Drew, D.Sc. It was shown by Ehrlich in 1886, in a classical experiment, that fresh tissues possess the power of reducing methylene-blue to its colourless form. Dr. Drew has utilised this reaction to compare the oxygen avidity of tumour cells with that of normal tissues. His method of procedure is to mince up the tissue and place the mince in a very dilute solution of methylene-blue in Locke's fluid, incubate at 37° C., and then to read at intervals the length of column decolorised. It is found in this way that normal cells are much more active reducers of methylene-blue than malignant cells. Of normal tissues kidney is the most active, followed closely by testis. The embryo is intermediate between normal and malignant tissues. The reaction is not obtained when the cell is killed by freezing and grinding, thus showing that the phenomenon is not entirely dependent upon an enzyme.—The Ætiology of Influenza, by Paul Fildes and J. McIntosh. This is the first instalment of a critical review of the subject. The authors have chosen, and we think with advantage, to analyse the basis upon which we may legitimately conclude that an organism is the causal element in any given disease. Koch's postulates, which have been accepted for thirty odd years as the guiding principles in this matter, were not, it appears, ever definitely formulated by Koch. In their historical inquiry the authors have had the advantage of consulting Professor William Bulloch, whose knowledge of bacteriological and pathological literature is unrivalled. It appears that Henle was the first to recognise clearly that, in order to prove that a given formed element in a lesion is of causative significance, it is necessary to isolate the element and test its powers. This, however, is by the way, and serves as introduction to the serious consideration of a vital and very difficult problem. The three main conditions which an organism should fulfil, if it is to be established as a causative agent of disease, are:—

(1) The virus should be capable of being recognised in a large proportion of the cases of the disease, preferably in relation to the chief lesions; (2) the virus should be shown to be living; (3) the virus should be shown to be capable of reproducing the disease in other animals.

These three rules are critically discussed and their application illustrated by reference to "modern instances."—In the section devoted to technique S. L. Baker describes a method for the demonstration of the capsules of bacteria, depending upon the use of Indian ink; and P. Fildes gives the formula for the preparation of a medium for the cultivation of *B. influenzæ*.—The journal is well produced, well printed, and of a handy size. It deserves the whole-hearted support of the profession.

Tubercle, a Monthly Journal Devoted to all Aspects of Tuberculosis, Vol. I., No. 8, May, 1920.—In a leading article Dr. J. B. McDougall puts to the test of war experience the belief that pulmonary tuberculosis is induced by trauma of the lung. Excluding six cases whose pre-existing lung disease does not seem to have been aggravated by the wound, only one out of a total of 139 cases of penetrating wound of the chest subsequently developed pulmonary tuberculosis, and several authors are quoted as recording similar results. In fact, if the trauma had been fractured femur instead of injury to the lung the proportion affected by subsequent tubercle could hardly have been less. No doubt patients with trauma of the chest have often been condemned as tuberculous owing to the ambiguity of physical signs, for Dr. McDougall points out that "no sign or symptom of phthisis may not be simulated by a foreign body in the lung if an examination of the sputum be neglected." X rays are, of course, valuable, but not infallible. A very interesting little research on the incidence of tuberculosis in an isolated Norwegian village has been carried out by Dr. Björn-Hansen. Tuberculosis of the skin is the subject of a number of abstracts of recent articles on the numerous forms of these affections, covering no less than nine pages. Among other articles a detailed account of tuberculosis administration in Edinburgh is worthy of special notice by practical workers.

Paris Médical.—The French medical press is occasionally enlivened by articles on the historical or artistic aspects of medicine. The issue of the *Paris Médical* for May 1st contains some interesting Notes on the Measles of Lous XIV., by MM. A. Gilbert and P. Cornet, in which the authors, besides giving the history of the monarch's illness, quote St. Simon's remarks on his prodigious appetite, and the poem on the King's convalescence, written by Racine, which gained for the poet his first presentation at Court.—The same number has a delightful article by M. Malorey on the Monastery of the Val de Grâce up to the death of Anne of Austria. Few people who visit the Val de Grâce Military Hospital realise the antiquity of the buildings whose foundation-stone was laid by Anne of Austria in 1624, and M. Malorey has evolved not only the ulterior history of the original building Le Petit Bourbon, but the tale of the Queen's difference of opinion with her architect Mansard, and many other historical items sandwiched between philosophical reflections. The pathological side of art has always interested doctors, and in *Paris Médical* M. Henri Roché discusses the Salon de l'Ecole Française from the medical point of view with a genial indulgence that dwells on the good intention rather than on the feeble accomplishment. His note on one of a series of pictures by M. Prévot, designed for the musée of the Val de Grâce is an example of his kindly criticism. The painting is called "The Wounded of the Val de Grâce Taking Refuge in the Cloister during the Bombardment of Paris," and M. Roché says of it: "This composition is rather confused, but suits the subject; if the story attracts us the perspective and the lighting are less defensible." The sight of a number of nude women painted one blue, one violet, one red, and one yellow, by the same artist, only draws from M. Roché the mild comment that he must have frequented hospitals too much to be able to see clearly! The picture of a pre-human family called "L'Age de Pierre," by Riolet, seems to have somewhat strained M. Roché's lenity, but after noting the strange resemblance of the male to the late Francis Joseph and describing the picture, he can only bring himself to say, "And to think that there are such beautiful subjects for painting without going back to prehistoric times!"

THE LANCET.

LONDON: SATURDAY, MAY 29, 1920.

The Future of the Medical Services: The Report of the Consultative Council.

WE publish this week a full abstract of the Interim Report on the Future Provision of Medical and Allied Services which has been made by the Consultative Council on these Services to the Ministry of Health. The Report is signed by Lord DAWSON OF PENN as Chairman of the Council, and Colonel C. J. BOND as Vice-Chairman, on behalf of the Council, whose personnel we recall to memory in our abstract. It may be taken therefore that the Report, rendered by a trusted group of experts, is a unanimous one, though it stands to reason that where so many difficult and even contentious points have been in question the unanimity must have been arrived at by a considerable adjustment and readjustment of personal views. This is exactly as it should be, having regard to the significant note of introduction from the Minister of Health, and the deliberately loose reference to the Council. Dr. ADDISON points out that the Report has been published to facilitate discussion, having in view, no doubt, the impending Health Services Bill. What, therefore, the Minister of Health expects from the Report is general guidance in the framing of a large measure which will inevitably receive many modifications between the stages of its inception and its final enactment. Here the Report should be of real utility, for, having many polemical subjects in review before them, the members of the Council have come to certain common conclusions, by acceptance of which time will be saved in the future discussion of health matters. Moreover, the profession and callings concerned, and the public, are asked to study the Report, and thus help by their criticism to obviate differences of opinion, as far as may be, at an important stage of public health affairs.

The scheme laid down in the Report is quite a detailed one, the space that might have been occupied, perhaps fruitlessly, by recounting the arguments which led to the conclusions, being taken up more practically with the setting out of the steps of reform and the development projected. It is clear to all engaged in public work that the scheme cannot be set in motion at once in its entirety, however much goodwill on the side of the public and on the side of the medical profession may lie behind it, because considerable changes are postulated in the existing law, and a great expenditure of public money is assumed; yet trial along many lines, to see how far it furnishes a practical solution of public and professional difficulties, appears quite possible. Indeed, as Dr. ADDISON points out in his foreword, action is already being taken by the Ministry of Health and the local authorities in relation to many matters touched upon in the Report. The document seems to us, therefore, both in scope and temper, much what might have been expected from the Consultative Council, which was asked to give expert advice as to the systematised provision of the services in question, to be applied to a given area. The recommendations will have to be considered in relation to a comprehensive policy, but in their general bearings, as they apply to a given area, their justification in that area should lead to natural rivalry in other districts. Thus State help could be directed by the local successes, and could be applied elsewhere, and in a wider manner. For it will not be forgotten that the Report is an interim one, it being clearly the intention of the Council to follow up its recommendations by advice to be given, when and where needed, for the extension and development of health services. It is right to lay stress on the interim nature of the Report because of the promises of work and the opportunities of its revision which are conveyed by the term. While the scheme for the future of the Medical and Allied Services is symmetrical and clear, it would be perfectly easy to raise questions as to the practicability of this or that suggested move. But it would be difficult to find places where the problems, as stated, are not the logical derivatives of facts familiar to many of us. In its broad outline the scheme supplies that proper intercourse between centre and periphery which has been notoriously absent from the health services of the country. In this way it is itself representative of the very sentiments which, by their insistence upon the need for a unifying and directing force in public health affairs, led to the institution of the Ministry of Health. The Report will be on sale through any bookseller, or directly from the Stationery Office, and although we have found room to publish an abstract which reproduces its essentials, we urge upon all our readers the necessity of consulting the actual document. All will remember how the overwhelming evidence in regard to the multiplicity of central departments and of local authorities brought about the Ministry of Health, if only as a remedy for such anomalies; and we need not recapitulate the glaring examples supplied by numerous witnesses of the comical overlapping and intricate complexity of health administration which led to the new legislation. But what has to be remembered is—and strange it is that it should be forgotten—that the Ministry of Health arrived when the country was plunged in war, and that the processes of evolution were all immediately complicated, and some for ever suspended. Nor can it be said that the circumstances for the orderly working out of our sanitary salvation are yet in the least promising, while the effects of the war still hinder public work in every

direction. But this interim Report is a practical step forwards; it is a piece of direct assistance to future legislation by its suggestions for the removal of the complications and absurdities of the past and for giving effect to a better state of things.

Preliminary to the presenting of the Health Services Bill to Parliament the Ministry of Health has thus received from its Consultative Council advice, ideal in scope and detailed in design. We may state at once our belief that with the general spirit of the Report, saying nothing whatever as to its practicability as a whole, the members of the services concerned will be in considerable agreement. Those desirous of a whole-time State service will be disappointed that their beliefs are not adopted, but the suggested extension of duty, which will carry with it State or municipal pay, shows that their reading of the facts of professional life has received close attention. Those who, in defiance, as it always seems to us, of the finer and more economical course, have insisted upon the early death of the voluntary system in our hospitals, will find in the scheme proposals for the immense improvement of that system, if generously supplemented in the indicated directions. This may be read as acquiescence in many of the arguments of those who oppose the voluntary system, being a confession that much outside help is required if that system is to be maintained. While the medical profession, in the Report, is regarded as a whole chain, the separate divisions have received symmetrical attention, each link being appraised. The connexion between the general practitioner, the consultant, the specialist, and their auxiliaries, as well as the actual ways in which domiciliary and institutional treatment affect each class, have been thought out, and the scheme has been evolved with broad expectation of better things. In a score of places there is room for the discussion, which the Minister of Health asks for, which the Consultative Council expects, and which reference to the columns of the medical press will forecast. For the scheme, while new in setting and executed with the free brush of those who paint ideally, is in many respects on all fours with schemes which have been before the medical profession for some time. It is no *pastiche*, but the Consultative Council will certainly not sacrifice the value of heredity by suggesting that its plan has not had worthy ancestors. Reform has been projected along similar lines for many years, notably by the British Medical Association, whose scheme for the establishment of hospitals, clinics, and treatment centres for different areas has much in common with the scheme of the Consultative Council when dealing with institutional treatment. To unify our profession, and to make the treatment for all assume the standard which freedom of thought and of action alone can give, has been the underlying idea of the Report, and to give expression to this idea is the duty of the Consultative Council.

We publish also this week a summary of the First Report of the Welsh Consultative Council. It will be seen how far it is in general agreement with the English Report, and economists will rejoice in the evidence which it produces that much of what has to be done is already in the active doing. The particular significance of the Welsh Report is that it emanates from a composite body, so that one document puts forth the views alike of the representatives of the Medical Profession, of the National Insurance Commission, and of Local Medical Administration.

Opium, the Treaty and the League.

NOT a little confusion exists in the minds of some who have attempted to follow the respective provisions of the International Opium Convention of 1912, the Versailles Peace Treaty, and the League of Nations Covenant in regard to the restrictions it is sought to place upon the traffic in drugs of addiction. It may be well to endeavour to elucidate the present position to which this international effort to check the illicit use of opium, morphia, cocaine, &c., has now attained. In 1911–12 a diplomatic Conference was held at The Hague, at which the representatives of some dozen Powers collaborated in drafting an international convention for the limitation of the use of these dangerous drugs to legitimate and medical purposes. The Indo-Chinese trade in opium, which had received the unanimous condemnation of the House of Commons in 1906 as "morally indefensible," petered out, under an agreement between Great Britain and China, in the year 1917. But at a Commission held in Shanghai in 1909 it had already become clearly evident that the so-called opium evil was not a question of the Far East alone, but that in the form of addiction to morphia, heroin, and cocaine the Occident as well as the Orient had its narco-maniacs, and that any measures for meeting the evil must be world-wide in the extent of their operation. The United States had come to recognise that not only was this question an affair of theirs in their Philippine possessions, but that "a serious opium evil obtained in the United States itself."

The Convention drawn up at The Hague in 1912 aimed at the international control of traffic in opium, whether raw or "prepared" for smoking or medicinal use, morphia, heroin, cocaine, and their respective salts, and the regulation of the production, sale, distribution, or possession of these "dangerous drugs" through legislation and administration by each of the contracting parties. Its effectuating clauses provided for the signature and ratification of the Convention by all Powers, in addition to those represented at the Shanghai Commission and The Hague Conference, for the coming into force of the Convention and for the enactment of the legislation which adhesion to the Convention involved. Two subsequent conferences at The Hague, in 1913 and 1914, the last just before the outbreak of war, were able to record considerable progress in securing the adhesion of some 44 Powers to the Convention through the intermediation of the Netherlands Government. Moreover, at the third and last Conference a special protocol was devised for signature by such of the Powers as had already ratified the Convention and who were prepared to take action without waiting for the other Powers to come into line. The five years of war of course put an end for a time to any such international coöperation as the effectuation of the Convention implied. When peace came the threads were again taken up, and by Article 295 of the Treaty of Versailles those signatories to that Treaty who had hitherto not signed or not ratified the Opium Convention were held to have both ratified the Convention and signed the special protocol to which allusion has just been made. Thus Germany, which had in June, 1914, refused to ratify, was brought into line with Powers such as the United States, the Netherlands, China, and Norway, which had both ratified the Convention and signed the special protocol. The same article of the

Versailles Treaty required the enactment of legislation in accord with the provisions of the Convention within 12 months from the coming into force of that Treaty. This date has since been fixed as Jan. 10th of this year, so that before Jan. 10th, 1921, legislation by the contracting parties should have been passed.

From an answer recently given in the House of Commons the Government appear to hold that Great Britain, although she had ratified the Opium Convention prior to the war, is covered by the terms of Article 295 of the Peace Treaty, and is bound to enact the required pharmacy legislation this year, as well as to observe the provisions of the special protocol. In furtherance of this undertaking the Home Secretary on May 4th introduced a Bill entitled the "Dangerous Drugs Bill," to give effect to the International Opium Convention of 1912. It contains stringent clauses forbidding, under heavy penalties, the import or export of "prepared opium" for smoking, restricting the import, export, sale or distribution of raw opium to licensed or authorised persons, and regulating the manufacture, sale, possession, and distribution of morphia, cocaine, &c. Recent disclosures in police and coroners' courts have directed attention to the range and extent of the illicit traffic in these drugs of addiction. It is not creditable to learn, as the President of the Board of Trade stated on May 17th in the House of Commons, that more than 300,000 ounces, valued at over £300,000, of British-made morphia were exported last year from this country. Sir R. HORNE'S statement will be found in our Parliamentary Correspondence this week, and it must be remembered that particulars are not available of exports through the post. It is alleged that no inconsiderable portion of this drug finds its way through Canada and the States to Japan, and thence to China. It is, indeed, cynically averred that while Indian opium has been shut out of China British morphia has been going in, and Dr. WU LIEN TEH, at a medical conference at Peking recently made grave charges in this respect against certain of our manufacturers. There can be but little doubt that the world-supply of opium and morphia is grossly in excess of any conceivable legitimate use. The area under the poppy in India has, moreover, shown a remarkable rise between 1913 and 1917, as will be seen by the tabular statements circulated by the Secretary for India (see p. 1199); and though the export trade from India to China is said to have ceased, some 10,000 chests of opium were in 1918–19 exported from India, chiefly to Indo-China, Japan, Java, Siam, Hong-Kong, and Straits Settlements.

It was the object of those who drafted the Opium Convention to control at the source the fabrication of these drugs, so that, while placing no impediment upon their legitimate and beneficent medical employment, their prostitution to vicious abuse should not be fostered and maintained by an over-production which must inevitably lead to illicit consumption with its attendant social and moral degradation. It is to be hoped that the League of Nations, to whom the international carrying out of the Opium Convention has been entrusted, will lose no time in promoting legislation on lines similar to those of the Home Office Bill, by all those Powers, nearly 40 in number, which have entered into its membership. Here is a piece of humanitarian and social reform ready to hand by the promotion of which the League may well earn the gratitude of mankind.

The Prophylaxis of Shell Shock.

IT is possible that with the spate of articles, monographs, books, and reports on the question of "shell shock" during the last few years the profession may feel there is little new to be learned about it in these days, and it is, perhaps, natural some should be inclined to give the whole subject a rest. Nothing was too good for the wounded fighting man in his hospital and convalescent days, but mufti is less appealing than uniform, blue or otherwise, hence the pathetic figure standing forlorn outside a public-house, with a stringed instrument in his hands, and "Another Pensions Scandal" in large letters on a chest card, fails, apparently, to arouse even a languid interest. Possibly "shell shock" lost caste when it was shown to be little else than a banal traumatic neurosis, so facile are certain minds to be intrigued by the unusual, so prone to be bored by the commonplace; but there is a pathos of the commonplace none the less, which should rouse to action all of us for whom, in STEVENSON'S words, pity is no longer an emotion, but a motive.

Little, indeed, would be the advance made in our knowledge of the psycho-neuroses of war were it to be confined to reparation, or were the half-expressed belief that Armageddon will never return to result in the dismissal of the question of possible prevention of "shell shock" from the field of practical medicine. It has not infrequently happened that fertile suggestions for the furtherance of some professional problem have emanated from the intelligent lay mind, which surveys the subject from a different angle and may be conversant with some aspect less likely to be familiar to the medical. In this connexion we wish to direct attention to the recent discussion in the House of Lords on Lord SOUTHBOROUGH'S motion for an expert inquiry into all the phenomena of "shell shock," and to the valuable expressions of opinion to which that discussion gave rise. Hitherto little or nothing has transpired in public as to the occasional occurrence of grave dereliction of military duty on the part of some of our combatants, who because of what in military law is termed desertion or cowardice paid the extreme penalty. According to Lord HORNE it was rather "in the later part of the war" that the possibility of the military crime being due to some or other form of psycho-neurosis led to the accused's coming under the surveillance of medical authorities or being detained for observation. The implicit deduction is, we fear, that there were tragedies in the earlier days on which we do not care to linger. Probably some practising neurologists saw cases here at home of officers who had been adjudged incapable of leading men or unfit for professional duties, who left the service under a cloud or were reduced to the ranks, officers who, as a fact, were suffering from what the old school called "funk," but the new, traumatic psycho-neurosis. It took time for the novel conception to filter through to the administrative strata of the military machine, and we find ourselves in agreement with Lord SOUTHBOROUGH'S contention that the disorder now called "shell shock" must have occurred in other wars, and that among its victims were many whose condition was never properly understood. We are irresistibly reminded of the civilian victims of *la grande névrose*, whose tragic deaths dotted the sixteenth and seventeenth centuries.

On the other hand, however, decision as to motives is a task to try the most expert psycho-

logist, and if the general trend of recent opinion is that responsibility may be abrogated through mental disturbance causing the loss of control, there is danger, nevertheless, in a loose humanitarianism. The safeguards which Viscount PEEL stated were set up in the procedure of courts martial doubtless served their purpose, judging by the contrast between the figures of the condemned and of those who actually underwent the extreme penalty. But all, or at least a good part, of this painful business might be obviated in the warfare of the future were it possible in some degree to prepare the mind of the fighting man against the disasters of hysteria or other traumatic psychoneurosis. Is such a proposal feasible? Though schools? innumerable at home and behind the fronts familiarised the young soldier with the conditions of actual warfare they could not reproduce the sights and sounds and smells that would subsequently bombard his sense avenues till his receptors either failed to convey more impressions, or their heightened sensitiveness resulted in overwhelming of his centres. Dr. MORTON PRINCE has suggested that confidence might be imparted by training and education, so that the soldier, forewarned as to the influence of his own fears and of external stimuli, might be in some degree forearmed. This is a matter for serious investigation. In the welter of fighting two great emotions are apt to rise into consciousness to mould conduct—hate and fear. The latter takes origin largely in the unknown, the unforeseen, the uncontrollable; when relatively stable and familiar situations are destroyed and we are projected into situations with which we are no longer familiar, we may react with fear. One aspect of the training problem, therefore, might be to accustom the recruit to the novelty of war environment, as far as such an attempt can ever be realistic; but it would be of greater significance to ascertain of what stuff he is made. During the war it became apparent, we think, that there were two types of nervous breakdown: some men collapsed within a period of actual fighting, measured merely by days or even hours; others "stuck it" for years ere their current of nervous energy began to ebb. Some preliminary psychological examination of the recruit might help to segregate the potential neurotics from the others, though it must be admitted that in actual fact hysteria occurred where it was least expected, while especially among the flying men the hypersensitive proved superior to the phlegmatic.

The difficulties which suggest themselves ought not to deter the authorities from obtaining a consensus of expert opinion on the pathogenesis of "shell shock" from the point of view of its subject. Even as early as December, 1914, we drew attention to the fact that traumatic hysteria was showing itself in men who admitted they were in excellent physical condition when the incidents precipitating the neurosis occurred, but nothing whatever was known of their psychical "make-up." So exhaustively has the subject been studied that, we conceive all the material is at hand for a thorough examination less of the external factors than of the internal; knowledge derived from such an investigation is the essential preliminary to the elaboration of any scheme of prophylaxis. It is a task demanding the services of men of the highest eminence in this particular branch of investigation, and we should await the report of such a committee with keen interest.

Annotations.

"Ne quid nimis."

NATIONAL HEALTH INSURANCE BILL: CHANGES IN BENEFITS AND CONTRIBUTIONS.

THE National Health Insurance Bill, which has just received the Royal Assent, makes important changes in the benefits and contributions under the Health Insurance Scheme to operate from July 5th next. The object of the changes is to provide for an increase in the rates of benefits in view of the fall in the value of money. The normal rate of sickness benefit will be raised from 10*s*. to 15*s*. a week in the case of men, and from 7*s*. 6*d*. to 12*s*. a week in the case of women; disablement benefit will be raised from 5*s*. a week to 7*s*. 6*d*. for both men and women; and the amount of maternity benefit will be raised from 30*s*. to 40*s*. In order to provide for the increase of benefits the joint weekly contribution is to be increased from 7*d*. to 10*d*. in the case of men, and from 6*d*. to 9*d*. in the case of women, of which the employer's portion will normally be 5*d*. in each case. In certain cases where low wages are paid the employer will pay a larger and the worker a smaller portion of the joint contribution. The contribution cards from the week beginning July 5th next must in all cases be stamped at the rate of 10*d*. a week for men and 9*d*. for women; stamps of these values will be on sale at post-offices.

MEDICINE IN CHINA.

THE medical profession is essentially a fighting service, engaged in a continual warfare against disease. Wherever sickness or wounds are worst, there is the spot for the doctors to concentrate. The recent war provided an example of which we may well be proud. Few of us, perhaps, think of China as a point for such concentration, yet probably no country in the world presents a greater challenge to medical science or a larger field for patient labour and for original research. In the forefront of those who have sought to meet this challenge we must unhesitatingly place the missionary doctor. In proportion to the need his efforts may seem grotesquely small. We read in Dr. H. Balme's recent inquiry into the scientific efficiency of mission hospitals in China that there is still an average of only one mission hospital bed to every 26,640 people in China, and that 80 per cent. of the hospitals have only one foreign or foreign-trained doctor. Certainly there is scope enough for improvement here. But it is gratifying to know how much has been done. To many of our readers Dr. Wu Lien Teh's article (see p. 1203) will come as a surprise. The advance made in nine short years can probably not be paralleled by the experience of any other country in the world. The romantic story of the fight with pneumonic plague in Manchuria in 1911 has been told before. Not only had this far-reaching effects in checking the scourge and saving, it may be, the whole of China from invasion, but it provided an object-lesson in Western medical science that the Chinese were not slow to learn. From that beginning, with characteristic thoroughness and enthusiasm, the medical service of China was organised. What has already been accomplished is a notable page of medical history, briefly summarised in Dr. Wu Lien Teh's article. The coöperation of Chinese and foreigner

in this advance has been one of its most notable features. We feel that Chinese medical men will have much to contribute to medical and surgical science in the future. They have already shown their ability in professional work, and in powers of organising for public health. Those who have had Chinese colleagues in hospital or other work will agree in giving them a high place for efficient work, sweet temper, and resourcefulness. At present, and for some time to come, however, the need would seem to us to be for more medical men and women from this country to go to China. Those who thus fare forth will find ample scope for adventure. They will be facing one of the biggest jobs in the world; and they will have an unparalleled field for enterprise and advance.

ANOMALOUS CASES OF SMALL-POX.

IN our present issue appears an interesting account by Dr. Walter Allingham of three cases of disease which in their early stages resembled chicken-pox, but which subsequently assumed many of the characteristics of small-pox. After the initial symptoms of headache and malaise the patients seem to have suffered but little inconvenience. In each instance a papular rash appeared on the third day of illness and rapidly became vesicular. The distribution of the eruption and the fact that it came out in successive crops was more suggestive of chicken-pox than small-pox. After the initial rash had been out for eight days, a second rash, quite distinct and easily differentiated from the first, made its appearance. It was petechial, deep-seated, and somewhat "shotty" in character, and had a more or less typical small-pox distribution. It may at once be admitted that the diagnosis of cases of illness such as those described by Dr. Allingham is a matter of very great difficulty involving grave anxiety to the medical man in charge of the patients, and to the medical officer of health, who has to give an opinion in such perplexing instances. In the early part of this year Dr. S. M. Copeman, one of the medical officers of the Ministry of Health, read a paper before the Epidemiological Section of the Royal Society of Medicine on an outbreak of varioloid disease of anomalous character which occurred in a limited area of Norfolk and Suffolk and had been investigated by him on behalf of the Ministry. He expressed the view that the disease in question bore a close relationship with the form of small-pox termed "alastrim," and invited discussion on the subject. The cases now described by Dr. Allingham appear to have resembled in certain respects those commented on by Dr. Copeman, and may possibly have been of a similar nature.

Considerable attention has been directed to the study of varioloid diseases in different parts of the world and outbreaks of a malady resembling small-pox, but differing from it in certain important particulars, have been investigated in Jamaica, Trinidad, South Africa, and Brazil. A number of different synonyms have been applied to this disease, such as "varioloid varicella," "amaas," "Kaffir milk-pox," "pseudo small-pox," "alastrim," &c. The question has been debated as to whether this disease, which appears to have occurred in many different parts of the world, is more closely allied to small-pox or chicken-pox, or is a new disease half-way between the two. It is claimed that alastrim, to use one of its many synonyms, differs from varicella in the following respects—namely, the vesicles become confluent in certain cases; the disease attacks adults more frequently than children; and at least partial protection against it is afforded by vaccination. The following characteristics serve to differentiate it from small-pox: The low mortality, which seldom exceeds 2 per cent.; the fact that it is less severe in children than in adults; the rash appears in successive crops, and is generally superficial in character, while the vesicles, which are of a dull whitish colour, are of different shapes and are not unbilicated; absence of secondary fever—after the initial symptoms the patients generally feel perfectly well—and absence of the characteristic smell of small-pox; the limited duration of immunity to alastrim conferred by vaccination and the fact that it is possible to successfully vaccinate the patient shortly after an attack of the disease. Most observers seem to regard the disease as an aberrant form of small-pox.

On the evidence before us we are not prepared to hazard an opinion as to whether or not the anomalous cases of varioloid disease recently met with in England were or were not alastrim. But we call attention to the fact that a disease which appears to differ in essential particulars from the ordinary small-pox met with in this country has come under observation in different districts, in the hope that, should like cases occur in future, the details may be carefully noted and recorded with a view to arriving at definite conclusions. Many departures from the normal are met with in cases of true small-pox which have been modified as a result of antecedent vaccination, and we know how difficult it is at times to differentiate such cases from chicken-pox. But if alastrim is to be accepted as a distinct clinical entity, and if it can be proved to have attacked persons resident in this country, the sooner the fact is recognised the better. In the meantime it will be well to treat all doubtful cases as small-pox, adopting the necessary measures to prevent the spread of the disease.

TREATMENT BY RADIUM.

THE report by Mr. A. E. Hayward Pinch, F.R.C.S., of the work carried out at the Radium Institute, London, during the year 1919 is much more than a record of successful achievement; it is a guide in brief to the present position of the treatment of disease by means of radio-active matter. A large part of the report is given up to the relative merits of the various forms of apparatus which have been tried, to the details of technique desirable in order to use efficiently and economically the costly materials, and to the means of protecting those who constantly work with radium from any harmful and even fatal effects. The fields in which so far radium has been most successful are indicated by the summary on the first page of the report. Out of a total of 822 cases seen for the first time during the year 22 were cured, 101 apparently cured, and 328 improved. Relief, more or less complete, was thus obtained in more than half the number of those who presented themselves. Of the 22 cures 20 come under the heading of "moles, warts, and papillomata," the remaining two being chronic ulceration and keloid. It might be more generally known that short exposures of one to one and a half hours' duration with full-strength applicators are sufficient to cause an almost reactionless

exfoliation in from three to four weeks' time in nearly all cases of simple papillomata. Radium is also generally to be preferred to surgical interference in cases of keloid and vicious cicatrix. The results obtained in the treatment of cavernous nævi in infants also leave little to be desired. Mr. Pinch prudently records no cure in the case of more serious tumours, but he admits to 80 apparent cures in rodent ulcer, three in sarcoma, two each in mammary carcinoma, granuloma, and uterine fibroid, and one each in squamous-celled carcinoma of the buccal mucous membrane and of the conjunctiva and in an endothelioma. With the exception of rodent ulcer no operable cases of malignant disease are treated at the Institute, save in the few instances where operation has been positively refused; hence these results are the more remarkable. We understand that several cases have now remained well over a period of 7 or 8 years. Radium has also given excellent results in certain cases of lupus of the skin which had shown themselves refractory to Finsen light. A further useful field for radium treatment has been found in early stages of exophthalmic goitre, and as a preliminary to splenectomy in patients suffering from splenic leucocythæmia. A separate report by Mr. W. L. S. Alton, F.I.C., director of the chemico-physical laboratory, gives some idea of the labour involved in preparing the 771 tubes and applicators during the year, corresponding to an activity of 66 g. of radium bromide. Five thousand bottles of radio-active water were distributed during the same time. The research department under Dr. J. C. Mottram was only opened in May last, but two important investigations have already been communicated to the Royal Society of Medicine, one showing the leucopenia liable to develop in those long exposed to radium emanation, and the other dealing with the curious observation that certain areas of skin do not light up under ultra-violet radiation, a fact which may lead to the radiologist obtaining a clue to the susceptibility of his patient. The report should be studied as a whole by all who wish to keep in touch with the modern development of physical remedies, and will be sent on request, post free, by the secretary of the Radium Institute, 16 Riding House-street, London, W. 1.

In his report on the work of the Manchester and District Radium Institute for the same year Dr. Arthur Burrows deals in some detail with the treatment of carcinoma of the tongue, floor of the mouth, soft and hard palate, tonsils and pharynx, deploring the cursory attention which the radium treatment of these growths has received hitherto and the discouraging results obtained. Dr. Burrows has recently followed the technique devised by Dr. Viol, of New York, which consists in burying within the substance of a tumour unscreened glass emanation tubes, no effort being made to recover these tubes after their insertion. He has applied this treatment to carcinoma of the tongue and mouth. Complete disappearance of the primary growth was obtained in one or two cases, and in others the lesion was replaced by a painless indurated thickening. In some of these cases there is no record of palpable glands, a fact indicating either a very early stage of disease or a lesion of low malignity and feeble infective character. There is, as is well known, a papillated form of epithelioma of the mouth and fauces, accompanied by but little submucous invasion, and this of all forms of mouth cancer is the one which gives the most favourable results to surgical interference or radium irradiation. It cannot, however, be denied that the American technique represents a step forward in the practical application of radium therapy to carcinoma of the mouth. If to this treatment were added early and complete removal by dissection of the glands on both sides of the neck, prognosis in these cases might become much less gloomy than it now is.

EYE-GATE AND EAR-GATE.

IN his entertaining oration before the Medical Society of London, published in THE LANCET of May 15th, Sir D'Arcy Power quotes the Rev. John Ward as remarking of his contemporaries:—

> "There are seueral sorts of physicians 1st. some yt canne talke but doe nothing; 2ly some yt canne doe but not talke; 3rdly some yt canne both doe and talk; 4thly some yt canne neither doe nor talk and these get most money."

The gibe contained in the last five words is charitably regarded by Sir D'Arcy Power as a jest on Ward's part, and is not the aspect of his remarks to which we wish to draw attention here. But Ward was acute enough to base what he thus rounded off with a well-timed gibe on a close observation of human faculties to which those concerned with medical education may give heed. In his preface to the latest continental text-book on surgery[1] Professor Carl Garrè, of Bonn, divides the students who attend his clinic for teaching into two groups which require quite different handling by the teacher. The first and smaller group quickly recognises what is morbid, gets a secure mental grasp of the deviations from the normal, and readily draws analogies; its difficulties begin where theoretical knowledge and critical deduction are needed. The second and larger group, drawn largely from city high schools and seminaries, unpractised in seeing and handling, finds it no easy task to recognise the variations from normal health. Theoretical knowledge is its métier. The two types are well known to modern psychology. The visual gifted thinks in actual pictures of objects and processes; its world of conceptions is alive with form, colour, and movement. The acoustic-gifted thinks in sound and verbal images, translating into this form the written and printed word. The student in whom the former faculty preponderates assimilates with ease the practical side of surgery with all its technique, but finds himself at a loss to systematise his knowledge. His fellow-student may classify and generalise, while the objects of his conceptions remain colourless and ill-defined. Surgical teaching must clearly recognise these differences and the methods of Garrè and Borchard's text-book are consciously based upon an appreciation of them. The two mental outfits are not fixed and unalterable; it is the aim of an intelligent system of teaching to supplement the defects of either. Ability to observe correctly, appreciation of the scientific meaning of what occurs, the logic of physiological and pathological laws—in this sequence, the student will, little by little, form a complete picture of his subject. Garrè quotes with approval Ach's maxim that practical medicine is in large part not merely applied medical science but also applied psychology. The same remark was made in other words by wise and witty Russell Reynolds in an opening address at University

[1] Lehrbuch der Chirurgie. Garrè and Borchard. 1920. Leipzig F. C. W. Vogel.

College in the year 1863. His apt characterisation of such types of medical student as David Superficialis Hurry and Cyrus Vane Velox attracted much attention at the time, and may be studied in the reprint of his address in our first issue of 1895. Of equal importance with the knowledge of physical science Reynolds held an "acquaintance with the nature and order of those processes of mind which the child or the savage may apply with instinctive correctness, but which the man of science will use but ineffectively unless he has arranged and analysed them." Subconsciously, doubtless, these principles are in the minds of all our own surgical teachers, whose results are a full justification of their methods. We do not recollect to have seen them stated so clearly as in Garrè's introductory essay, which may have more than a passing interest for the directors of our new surgical units, on whom rests the heavy burden of training the surgeons of the future.

THE RAVAGES OF MEASLES.

Dr. Doig McCrindle's latest annual report as medical officer of health for the county borough of Northampton is exceptional in that it deals with a period of four years, 1915 to 1918, instead of with the latter year alone. This is a procedure which, while it is not practicable in normal circumstances, might be expected to give a more balanced picture than that of the ordinary annual conspectus made from a narrower angle of vision. The report in question does not become thereby so markedly differentiated as might a priori have been anticipated, but this is obviously not an altogether fair test; the slowing of all public health activities, beyond the most essential, during the years of war must have masked a large part of the effect of a report such as the one here under consideration. In respect of measles, however, the advantage of the longer view is sufficiently marked. The report contains a full account of two separate grave epidemics, one occurring in the early part of 1915, the other in the latter half of 1917. Both epidemics were large ones, between 2000 and 3000 cases being notified in each outbreak in a population of 90,000. Both created records, the second being the most extensive ever recorded in Northampton, and the first having a fatality such that over three times as many deaths from measles were registered than in any year since 1898. The death-rate from measles in 1915 actually reached the figure 1·55 per 1000 of population. Dr. McCrindle draws attention to the significant fact that beyond the deaths frankly due to measles 88 deaths occurred in the first six months of 1915 among children under 5 years of age from bronchitis, pneumonia, and broncho-pneumonia; and that the deaths from these conditions diminished as the measles epidemic subsided. It seems very probable that a considerable number of the deaths in young children certified as due to respiratory diseases were in fact due to measles. It is, perhaps, not sufficiently recognised that the measles epidemic is not all above the surface, but that an unknown and probably considerable mass of infection is submerged, and none the less deadly in its effect from having been thus ignored or missed. Northampton is far from being alone in its experience of a severe type of measles during the years of war. Leeds, for example—to quote from an annual report taken at random from other 1918 reports—experienced a serious outbreak in that year. During 1918 over 400 deaths from measles were registered, and the epidemic was the most fatal ever recorded in the city. Over 6 per cent. of the cases died, while of the children under 2 years of age nearly one-fifth of those who developed the disease succumbed. The mortality after the age of 4 was comparatively light, indicating the practical importance of parents guarding their children from risk of contracting the disease during earliest childhood. It is a wholesome antidote to complacency to be reminded from time to time of the long, long trail before us before we can be sure of mastery over this scourge of childhood.

CEREBRAL SOFTENING SIMULATING LETHARGIC ENCEPHALITIS.

IN his exhaustive article (see p. 1152) on lethargic encephalitis, based upon two clinical lectures delivered at the University of Edinburgh, Dr. Edwin Bramwell deals with the protean symptomatology of the disease which may, at the outset, suggest cerebral hæmorrhage or embolism or, at the other extreme, functional disease with emotional disturbance. It is not yet sufficiently recognised that all the symptoms of lethargic encephalitis may be due to other cerebral diseases. At a recent meeting of the Société Médicale des Hôpitaux of Paris, MM. E. Baudoin and P. Lantuéjoul reported a case in which cerebral softening simulated lethargic encephalitis.

A woman, aged 57 years, was attacked on Feb. 3rd, 1920, with slight headache, and on the 4th vomited. On the 5th, when she came under observation, she responded well to questions, and said that the headache was less. Examination revealed only old hemiplegia and slight convergent strabismus of the left eye. On the 6th she was in a state of somnolence, which increased on the 7th, when she was admitted into hospital, with a temperature of 101·8° F. On the 8th she lay in a somnolent condition on her back. She answered questions correctly but with difficulty, and without raising her eyelids. It was necessary to repeat the question in a loud voice, and even to shake her in order to obtain an answer. She declared that she did not suffer and no longer had headache. The temperature was 100·7°, the pulse 76, unequal and irregular. The respiration was 20 and regular. She could not completely raise her eyelids, and they had to be forced apart in order to examine the pupils. These were unequal, the left being the smaller and not reacting to light; the right was irregular and reacted feebly. The eyeballs could be directed only to the right. There was slight rigidity of the neck, but Kernig's sign was absent. Lumbar puncture yielded clear fluid under normal tension containing 256 leucocytes to the cubic millimetre. The clot of centrifugalisation was composed almost entirely of intact polynuclears, with a few lymphocytes and red corpuscles and without microbes to direct examination. Culture-tubes of gelose and ascitic fluid remained sterile after inoculation. As there was incontinence of urine the patient was catheterised every six hours, and 750 g. of slightly albuminous urine were obtained. Death occurred on Feb. 10th. At the necropsy no meningeal lesions were found. The right cerebral hemisphere was the seat of softening, cortical and deep and almost total. The lesion was so extensive and marked that it was impossible to distinguish old from recent softening. Thus softening which came on insidiously produced the triad of symptoms of lethargic encephalitis—persistent somnolence, ocular troubles, and fever. However, the abundance of the leucocytosis and the polynucleosis of the cerebro-spinal fluid threw doubt on this diagnosis.

Babinski and other French writers have called attention to this leucocytosis as symptomatic of extensive cerebral softening. In one case the

hyperalbuminous cerebro-spinal fluid contained 40 leucocytes to the cubic millimetre, with marked polynucleosis, and in another 450 leucocytes almost entirely intact polynuclears. These leucocyte reactions are abundant in the early days of the lesion, and consist at first of intact polynuclears, then of lymphocytes. They may disappear rapidly.

ANTISCORBUTIC ORANGE-JUICE POWDER.

WE have more than once pointed out how convenient it would be if the vegetable and fruit juices containing antiscorbutic substances could be reduced to a powdered form without impairing their activity. In our issue of May 22nd Surgeon-Captain P. W. Bassett-Smith described an investigation, recently carried out at Greenwich, into the antiscorbutic potency of lozenges made from lemon-juice concentrated in vacuo without heat. In guinea-pig experiments their potency was very high. According to a paper on "The Antiscorbutic Properties of Concentrated Fruit Juices," by Arthur Harden and Robert Robison, published in the April number of the *Biochemical Journal*, the drying of fruit-juice has been successfully carried still further. The technical procedure has followed the lines of milk-powder production by the spray process, which avoids a temperature likely to reduce, if not to kill, the potency of the antiscorbutic agent. From the results obtained it is reported that a highly active dried orange-juice can readily be prepared on a commercial scale which will keep after prolonged storage under suitable conditions. The orange-juice, mixed with corn syrup, was forced as a fine spray into a chamber where it met a current of air heated to 75°–80°C. The drying was almost instantaneous, and the product when tested on guinea-pigs was found to afford complete protection from scurvy. As the authors point out, the peculiar value of such a substance lies in its adaptability for infant feeding and for the use of expeditions of long duration, where fresh fruit and vegetables are unobtainable and when transport must be reduced to a minimum. It would appear that orange-juice is decidedly superior to vegetable juices in regard to keeping its activity when exposed to relatively high temperatures. In spite of this observation the investigation of the effects of storage on dried orange-juice at tropical temperatures remains to be determined. We have already drawn attention to the fact that in the preparation on the large scale of citric acid from lemon-juice by separating the acid in the form of precipitated calcium citrate the antiscorbutic material escapes unimpaired in the filtrate. Surely, it is worth while to deal with this filtrate by the method suggested herein, and so to conserve a valuable accessory food factor.

VENEROID ULCER.

Dr. George Manghill Olson,[1] assistant professor of dermatology and syphilis at the University of Minnesota Medical School, gives this name to a condition first described by Welander in 1903 and occurring in the form of ulcers about the vulva of girls or women who had not been exposed to venereal disease. Constitutional disturbance is absent, and the first symptom noted by the patient is the presence about the vulva of one or more sores with a slight sticky discharge. The ulcers are round or oval, with their edges raised, sharply defined, and not undermined. There are no signs of inflammation in the adjacent tissues. The lesions are rather painful and bleed readily when touched or scraped with a dull instrument. There is no discharge of serum as in the primary lesion of syphilis, and the inguinal glands, as a rule, are not enlarged. Healing takes place under indifferent treatment in about a month, leaving typical superficial round or oval scars with slightly raised edges. In spite of these differences the ulcers may resemble in their general appearance hard chancre, chancroid and moist papules of syphilis. Microscopical examination of the discharge shows a great variety of bacilli and cocci, but the causal organism has still to be discovered. The Gram-positive bacillus described by Lipschutz is probably only a saprophyte. Unlike chancroid the disease is not auto-inoculable, and no cases have been reported in which the husband has been infected. The diagnosis is made by the history of non-exposure to venereal infection which may be corroborated by the presence of a hymen, an acute onset, absence of constitutional symptoms, a characteristic depressed round or oval ulcer with no induration, and the absence of the *Spirochæta pallida*, Ducrey's bacillus, the diphtheria bacillus, and the spirochæte and fusiform bacillus of erosive vulvitis.[2]

[1] Archives of Dermatology and Syphilology, March, 1920.

THE POST-GRADUATE MOVEMENT IN NEW YORK.

SUPPORTERS of the post-graduate movement in Great Britain will envy the results of a campaign which has been opened in New York for the establishment and furtherance of post-graduate medical education. An Endowment Fund, started in August last, has already realised more than £100,000, and New York is already talking of a legitimate ambition "to become the medical centre of the world." It would seem that from 3000 to 5000 American physicians went abroad in the years before the war, and those responsible for the new association consider that proper provision in New York for the needs of these men will save both time and money. Honourable rivalry spurs contesting parties onwards, and the view of our Fellowship of Medicine is that London should become just such a centre as New York is now contemplating. And this view is shared by many patriotic Americans, who see that London, by geography as well as by its metropolitan position in a scattered empire, has the greater opportunity of becoming representative of world needs. But the London movement, inaugurated in a poorer country, has not yet attracted the pecuniary support which New York can claim already. Few British rich men—and we are not without them—have yet come forward to assist post-graduate medical education in this country. The Fellowship of Medicine will welcome their interest, and it seems to us that a British Endowment Fund might captivate the imagination of the wealthy. Work, more far reaching in its scope and possibilities than is generally recognised, is being carried forward by the Fellowship with quite insufficient financial support. Post-graduates are arriving in London week by week from quarters which have not previously looked upon England as a centre for medical post-graduate work. During the last few days medical graduates from Toronto, Vancouver, Adelaide, Melbourne, Ottawa, Madras, the Transvaal, Bagota, and Christiania have presented themselves

[2] Vide THE LANCET, May 15th, p. 1079.

at the offices of the Fellowship, whilst postal inquiries, we are informed, come in daily. Suggestions are to hand from France for the linking up of post-graduate work in Paris with that in London for the mutual benefit of French and British practitioners, while the movement is receiving firm American support. There is no reason to suppose that the patriotic desire of the American graduate to make New York the medical centre of the world will stop the supply of American graduates.

THE NEW RENT BILL.

THE new Rent Restriction Bill, presented to Parliament by Dr. Addison on May 20th, will have considerable practical interest for many of our readers. The text of the Bill has now been issued, and seems, on the whole, to have met with a favourable reception, except that some dissatisfaction has been expressed that no provision has been made to meet the case of premises used wholly for business purposes. Until recently the great majority of medical men resided and practised at the same address, and this aspect of the problem will affect as yet but few. The terms of the Bill amount to a revision of the Rent Restriction Act of 1915, and provide for an extension of the Amending Act of last year for a period of three years from the time the Bill becomes authorised. The general impression is that the Bill will speedily become law, and therefore its provisions claim careful study in the directions which will affect both landlord and tenant alike. Generally speaking, the broadening of the scope of the Act will be welcomed, since its provisions are to be extended to houses which in 1914 commanded a rental of £105 in the London district, of £90 in Scotland, and of £78 in England and Wales, whereas in the Act of 1919 the rentals provided for were respectively limited to £70, £60, and £52. This extension will obviously give relief to a larger circle of tenants. At the same time the promoters of the Bill have borne in mind the case of the landlord responsible for repairs. The expense of keeping a house in decent repair has vastly increased, and the result is a deplorable set-back in the condition outside and in of tenements. This fact is detrimental, of course, to both tenant and landlord; there is inconvenience, including possibly sanitary defects, to the former, and depreciation to the interests of the latter. The new Bill allows an increase of rental, provided that reasonable repairs be carried out before the permitted increase of rent. Subject to these, amongst other conditions, the landlord may increase the rent by a maximal limit of 40 per cent. To a medical man it is often highly important that he should remain in his familiar house, and the new Rent Restriction Bill, when it becomes an Act, will help him materially in this direction.

DURING his forthcoming visit to Wales the King will open the North Wales Sanatorium at Llangwyfan, near Denbigh, on July 16th, and the South Wales Sanatorium at Talgarth, Breconshire, on July 17th. Both these sanatoriums have been constructed to meet the needs of the King Edward VII. Welsh National (Tuberculosis) Memorial Association.

ROYAL PORTSMOUTH HOSPITAL.—In accordance with the recommendation of a subcommittee appointed to consider the question, the management committee has decided to retain the ticket system of admission to this hospital. The suggested alteration in the value of the tickets—that is, the issue of two instead of four for every sovereign subscribed—is still under consideration.

THE FUTURE PROVISION OF MEDICAL AND ALLIED SERVICES.[1]

AN INTERIM REPORT OF THE CONSULTATIVE COUNCIL FOR ENGLAND.

A BRIEF preface by Dr. Addison, the Minister of Health, introduces the Report of the Consultative Council of Medical and Allied Services upon the provision that should be made in the future for developing these services for the greatest public good.

Prefatory Note by the Minister of Health.

"This Report, the first to be received from the Consultative Council on Medical and Allied Services established under the Ministry of Health Act, 1919, is published in order to facilitate discussion of the questions raised in it. Action is being taken by the Ministry of Health and the local authorities in relation to a number of matters touched upon in the Report; and proposals for action in other directions are in process of formulation. Many of the Council's recommendations must necessarily be considered in relation to a comprehensive policy for the extension and development of health services (including the question of the future administration of services at present entrusted to Poor-law authorities), which will be submitted to Parliament by the Government in due course."

Terms of Reference to the Council.

In October last the following reference was made to the Consultative Council on Medical and Allied Services:—

To consider and make recommendations as to the scheme or schemes requisite for the systematised provision of such forms of medical and allied services as should, in the opinion of the Council, be available for the inhabitants of a given area.

This document is the response of the Consultative Council who, finding that to give a detailed report on so large a reference would occupy longer time than was at its disposal, and having regard to the need for promptitude in the construction of a national health policy, has returned an Interim Report setting forth the direction of its deliberations and conclusions.

The Scope of the Interim Report.

The first section of the Report prepares us for a complete pattern of organisation designed in scope, availability, and distribution to meet the needs of the community of to-day. The growing cost of medical services is noted, as well as the recognised union of preventive and curative medicine, and the increasing need of institutional treatment side by side with an increasing popularity of such treatment.

To provide for these things the scheme considers medical services as classified into: (1) those which are domiciliary as distinct from those which are institutional; and (2) those which are individual as distinct from those which are "communal," meaning those which concern a section of the population and not a sick subject. The words of the Report require no explanation:—

9. We begin with the home, and the services, preventive and curative, which revolve round it—viz., those of the doctor, dentist, pharmacist, nurse, midwife, and health visitor. These we style domiciliary services, and they constitute the periphery of the scheme, the remainder of which is mainly institutional in character. A Health Centre is an institution wherein are brought together various medical services, preventive and curative, so as to form one organisation. Health Centres may be either Primary or Secondary, the former denoting a more simple, and the latter a more specialised service.

10. The domiciliary services of a given district would be based on a *Primary Health Centre*—an institution equipped for services of curative and preventive medicine to be conducted by the general practitioners of that district, in conjunction with an efficient nursing service and with the aid of visiting consultants and specialists. Primary Health Centres would vary in their size and complexity according to local needs, and as to their situation in town or country, but they would for the most part be staffed by the general practitioners of their district, the patients retaining the services of their own doctors.

[1] Ministry of Health: Interim Report on the Future Provision of Medical and Allied Services. London: His Majesty's Stationery Office. 1920.

11. A group of Primary Health Centres should in turn be based on a *Secondary Health Centre*. Here cases of difficulty, or cases requiring special treatment, would be referred from Primary Centres, whether the latter were situated in the town itself or in the country round. The equipment of the Secondary Centres would be more extensive, and the medical personnel more specialised. Patients entering a Secondary Health Centre would pass from the hands of their own doctors under the care of the medical staff of that Centre. Whereas a Primary Health Centre would be mainly staffed by general practitioners, a Secondary Health Centre would be mainly staffed by consultants and specialists. It would be a consultant service in function and would be carried out by specialists or by general practitioners acting in a consulting capacity.

12. Secondary Health Centres must of necessity be situated in towns, where alone an efficient consultant service and adequate equipment could be expected, and the necessary means of communication exist. The selection of these towns will need careful consideration, and full information will be required as to the extent of existing provision of hospital and allied facilities, and of its distribution in relation to population and means of public conveyance. In rural areas the natural currents of traffic and business and existing medical facilities will usually indicate the town or towns in which a Secondary Health Centre may best be placed. In this connexion we would like to point out the importance of carrying out a "Hospital Survey" at an early date. The results of this survey would afford data for recognising the areas in which the existing provision is inadequate, and the degree of the inadequacy. The Secondary Health Centres would vary in size and elaboration according to circumstances.

13. Secondary Health Centres should in turn be brought into relation with a *Teaching Hospital* having a Medical School. This is desirable, first in the interest of the individual patient, that in difficult cases he may have the advantages of the highest skill available, and secondly in the interest of the medical men attached to the Primary and Secondary Centres, that they may have the opportunity to follow the later stages of an illness in which they have been concerned at the beginning, to make themselves acquainted with the treatment adopted, and to appreciate the needs of a patient after his return to his home. In those towns where teaching hospitals exist, Secondary Health Centres would sometimes be merged in them.

The accompanying illustration shows the scheme of services for a county area, in a diagrammatic way, and Gloucestershire, under the guidance of Dr. J. Middleton Martin, has already laid down some such pattern, which is also reproduced in the Report.

This section closes with the declaration that the dominant purpose underlying the recommendations is to secure provision of buildings and equipment, services suitably correlated and available for all, opportunity for the best work and furtherance of knowledge, coördination of preventive and curative medicine, and freedom of action for doctor and patient.

Domiciliary Service.

The second section deals with Domiciliary Service, defined as the first element in any scheme of systematised medical services, comprising the doctor, dentist, pharmacist, nurse, midwife, and health visitor. The Report runs:—

19. *Doctors.*—A doctor should be so located as to be reasonably accessible to his patients. He would attend his patients either at their homes or his surgery, and would carry out such treatment as falls within his competence; or, if in his judgment, a patient could be more advantageously treated in the Primary Health Centre, he would be able to arrange for the patient to be transferred there under his care. He would attend in childbirth in their own homes such patients as arranged with him, or, if desirable, would secure their transference to a maternity bed in a Primary Health Centre or special institution.

20. Where the assistance of a consultant or specialist was needed, and it was impossible to transfer the patient to the Primary or Secondary Health Centre, it should be possible for him to summon such assistance to the patient's home.

21. The custom whereby each general practitioner has his consulting-rooms at his own house, should, under ordinary circumstances, continue, but where, as in certain congested areas, it is impossible for a doctor to provide adequate accommodation at his own expense, it should be possible, if the public interest demanded it, for the Health Authority to provide such accommodation at the Primary Health Centre, or elsewhere, on such terms as are reasonable, and after previous consultation with a Local Medical Advisory Council. Where local conditions, and medical opinion, favoured the plan collective surgeries might with advantage be tried, either attached to a Primary Health Centre, or set up elsewhere.

22. Work in preventive medicine by the general practitioner would be carried out both in the homes of his patients and in the Primary Health Centre, and the Health Authority should be enabled to make specific payments for such work.

23. We think that in any scheme of improved medical services the duty of the general practitioner to advise how to prevent disease and to improve the conditions of life among his patients should be an important element in his work.

24. The general practitioner, if adequately trained, should play a valuable part in the work of the communal services—e.g., antenatal supervision, child welfare, both before and during school age, physical culture, tuberculosis, venereal disease. He will be the first link in any chain of services to improve the conditions of industry, and to prevent any unfavourable or injurious influence upon the health of the workers.

The section further takes note of the needs of a regular pharmacy service in connexion with medical treatment at the periphery, and similarly of properly organised domiciliary nursing and midwifery.

Primary Health Centres.

The third section deals with Primary Health Centres in detail.

In the Primary Health Centres the health services and allied activities are gathered together and administered by the general practitioners of each district, the work being coördinated and supplemented by the Secondary Health Centre for the area. The Primary Health Centre has as its nucleus a district hospital, of which there are three types according to the population served. The accommodation of the projected building and its purposes are thus described, the descriptions being elucidated by plans and elevations drawn to scale.

37. *Accommodation.*—There would be wards of varying sizes, and for varying purposes, including provision for midwifery. The increasing employment of open-air treatment of illness would be provided for. Clinics would be equipped where doctors could see their patients and consult with each other. Further accommodation might include the following:—Operating room, with the necessary equipment; radiography rooms; laboratory for simple investigations; dispensary; baths, including simple hydrotherapy; equipment needed for massage, electricity, physical culture; a public mortuary; a common room which would serve as a meeting-place for the general practitioners of the district, and to store clinical records on an agreed and standardised basis.

It is designed also to aggregate at these centres a dental clinic, all the ancillary services falling under the headings of pre-natal care and child welfare, treatment of school children, physical culture, and early or preventive treatment of tuberculosis and occupational diseases.

Plans for the buildings are included in the Report, but the possibility of adapting existing Poor-law infirmaries and cottage hospitals is recognised, as are the possible inconveniences and ultimate expenses of such adaptations. It is suggested that war memorial hospitals might be constructed on the plans of the Report.

The arrangement for staffing the Centres is elaborate and ingenious. Every general practitioner is to attend his own patients requiring hospital treatment at the centre, irrespective of their status, but the practitioner's private patients will pay the Centre for accommodation and the doctor for his work. Consultant and specialist help will be available from the Secondary Health Centre, a telephone and ambulance service being an integral part of the scheme. At each centre one man will become a director of one of the special services—tuberculosis, venereal, treatment of school children, for example—having specially fitted himself for the post, and these directorships will be part-time posts paid on a time basis. This is a happy way of linking up the Primary and Secondary Centres with each other and with the teaching schools, as the part-time director of special services at the Primary Centre will have received his intensive training at the larger foci.

The section closes by describing the general practitioner's share in the scheme as follows:—

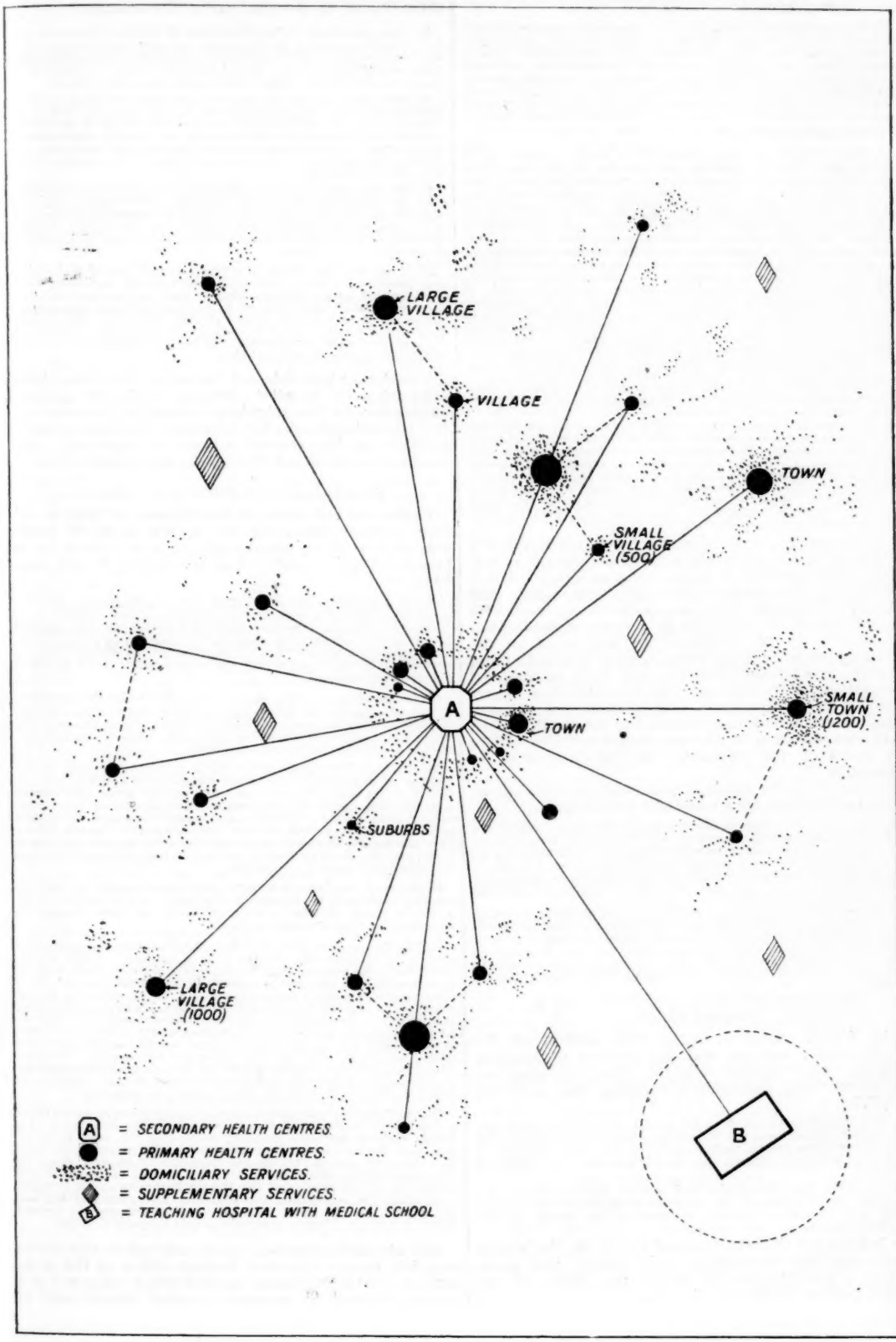
51. *Nature of the General Practitioner Service.*—It will be seen under the scheme so far outlined that the work of the general practitioner would be mainly domiciliary, but partly institutional, mainly individual but partly communal; that at the Primary Health Centre he would treat such of his patients as attended there; that at the Centre there would be provision of all needful equipment; and further, appointment as salaried director of one or more communal services would be open to him. In this way the advantages of organisation, hand-in-hand with the preservation of liberty of thought and action, would be secured.

The idea of a whole-time salaried service for all doctors was considered and rejected.

Secondary Health Centres.

The fourth section deals with Secondary Health Centres, and brings us to grips with the voluntary system for the support of hospitals, which is specially dealt with in the next section. The Secondary Health Centres are to be arranged in the large towns and the work will be mainly of a consultative type. The nucleus here is the existing general or county hospital, though additions and adaptations are contemplated. They will

DIAGRAM OF AN AREA SHOWING COÖRDINATED HEALTH SERVICES.



receive the cases referred to them from the Primary Centres, serve as models for these, and have the following equipment:—

57. Such equipment would include:—General Services: Medical, Surgical. Special Services: Obstetric, Gynæcological, Ophthalmological, Throat and Ear, Dermatological, Orthopædic, Genito-urinary, Dental, and Industrial Hygiene. Laboratories: Pathology in all its branches. Other Services: Pharmacy, Radiology, Electrotherapy, Hydrotherapy, Radiant Heat, Physical Culture, Massage, Nursing. In existing circumstances some of these services might have to be in separated, though closely coördinated, institutions.

The Report continues:—

59. The Curative Services of Secondary Health Centres would have as their nucleus existing hospitals, for to and from these latter flow the currents of medical work, and they are part of the life of their districts. In the comprehensive organisation contemplated, the functions of existing hospitals would be considerably extended, and the present buildings would not be large enough for such purposes, and would need to be either supplemented or enlarged. In those areas in which there are modern and well-equipped Poor-law infirmaries the necessary accommodation might be partly provided by the transfer of these institutions from the guardians to the Health Authority. We strongly urge that this reform should be carried out at the earliest possible moment. If this were accomplished not only would much of the increased accommodation required be provided, but a better classification of cases would be possible. The infirmary buildings could accommodate the large number of routine cases of illness which, though neither difficult nor dangerous, is disabling and as such needs to be promptly cured so that breadwinners and mothers of families may be restored to their work. At the present time, with pressure on the beds in the hospitals, these, from an economic point of view, important cases, are necessarily postponed on account of the claims of graver and more urgent illnesses.

60. It would, however, be necessary in many areas to establish complete and model Secondary Health Centres provided with every modern requirement. The separation of the buildings which constitute a Secondary Health Centre, though sometimes in actual circumstances necessary, is a real disadvantage on grounds of both efficiency and economy, and should be regarded as a temporary expedient to be supplanted, so soon as practicable, by adequately equipped buildings grouped on the same site, thus securing collaboration and unity of control.

The personnel of the consultant services would, it is suggested, be the staffs of the hospitals, though reluctance is anticipated from some of the members. For it is suggested that consultants would be part-time paid officers, with extra fees for special work, and with scheduled duties. Eligibility to serve as consultant or specialist is to be evidenced by any or all of the following points: Special study, tenure of appointment affording special opportunities, and local professional recognition. With reference to the last, the Report says: "We contemplate that general practitioners should be eligible for these posts, and we should regard their representation in the consultant services and on the staffs of the Secondary Health Centres as an advantage."

Private or paying wards in Secondary Health Centres are to be provided, thus meeting a known need.

72. We recommend that standard charges should be made in the public wards and for other curative services, though it is possible this standard charge might vary in different parts of the country. We contemplate that such charges would more often be met by some method of insurance, though private patients recommended by their doctors would have the right to avail themselves of these services by direct payment.

73. The standard charge at the Primary and Secondary Health Centres would include residence, food, nursing, and all equipment; at the Secondary Health Centre provision would also need to be made for the payment of consultant services. It would be open to any patient to request the advice of a consultant or specialist of his own selection, the patient being responsible for the fee.

The Teaching Hospital and the Voluntary Hospital System.

The Report considers, in the fifth section, all the supplementary services and the position of teaching hospitals with medical schools. The following are the far-reaching proposals concerning the Teaching Hospitals:—

76. The Teaching Hospital would receive cases of unusual difficulty, and those requiring specialised knowledge or equipment, and in so far as is necessary, patients suitable for either primary or secondary hospitals should be freely admitted to Teaching Hospitals.

77. Similarly, the laboratories and special departments of this Teaching Hospital would be a court of reference and would inspire and lead the laboratory services of the Health Centres attached to them.

It is intended that the hospital should be the centre of post-graduate instruction, and initiate and guide collective investigation in which the staffs of the Health Centres would play their part.

The pecuniary position and needs of the voluntary hospitals are then summarised, the Report describing them thus as an essential part of the scheme:—

83. Some hospitals, which on account of their endowments have not hitherto appealed to the public, are now beginning to do so, their endowments being insufficient to meet the increased expenditure. Their entry into the field has made it still more difficult for those who have hitherto depended entirely on subscriptions.

84. We hope that the scheme we have suggested will help these institutions, since these institutions are an essential part of the scheme. They should receive grants in aid for work carried out, and we hope that those of them which are suitably equipped may receive grants in aid for carrying on research, and that those with schools attached may also be assisted in their most important work of medical education.

85. We take this opportunity of expressing our admiration of the way in which the voluntary hospitals have carried out their magnificent work, in spite of innumerable difficulties and through long years, when less interest was taken than now in the health of the poor, or in the painstaking research which has for its purpose the prevention of disease.

86. If no hospital exists in a given area it would have to be provided. If a voluntary hospital does exist its assistance would be welcomed, both in the provision of beds and equipment, and in the accumulated experience of its medical staff and management, which would be valuable to any Health Authority. The benefits they would receive under the scheme would be in proportion to the extent of their coöperation and their readiness to come into coördination with the general plan.

The Report here sets out the reasons for the existing difficulties in hospital finance, while the greatest admiration for the voluntary system is expressed, and the resolution to use the voluntary hospitals wherever available in the general scheme is registered. The need for standardised clinical records is pointed out.

Administration in Relation to the Doctor.

Under the sub-head of Administration, also in the fifth section, the need for a new type of health authority to bring about unity of local control for all health services, curative and preventive, is laid down thus:—

94. As regards the nature of this new Health Authority, there are some who favour a Statutory Committee of an existing Local Authority, whereas there are others who favour the establishment of an *ad hoc* independent body for the purpose of administering health services alone. The question which of these courses is preferable is one upon which we would rather defer any final expression of opinion.

95. Whatever may be the nature of the future Health Authority, it will be necessary to devise machinery for securing the complete intercommunication and coördination above referred to, and what we desire to emphasise here is that such intercommunication is vital to an efficient health organisation.

96. *Relation of the Medical Profession to Administration.*—In the opinion of the Council, one of the conditions of efficient service is that the medical profession as such should come into organic relation with health administration. The success of the service will depend upon the coöperation and the enthusiasm of the medical profession, and if doctors play a responsible part in the administration, the Health Authority will have the advantage of their knowledge, and the local profession will feel its reputation and interests identified with those of the service.

97. To carry this idea into effect, we recommend: (1) that the medical profession be represented as such in the future Health Authority; and (2) that a Local Medical Advisory Council be associated with each Health Authority.

98. *The Composition of the Health Authority.*—The representatives elected by popular vote should hold a majority on the Health Authority. We suggest that they should constitute three-fifths of the membership, and that the remaining two-fifths be made up of persons whose special knowledge would be of value in health questions, a majority of whom should be medical representatives nominated by the Local Medical Advisory Council. By such an arrangement, the elected representatives would hold the majority of votes, and the nominated members would contribute to the skilled knowledge necessary for successful deliberation. Methods should be provided whereby the Health Authority could obtain the advice and ascertain the collective opinions of those engaged in allied services, such as pharmacists, nurses, or midwives.

99. *Local Medical Advisory Council.*—In any areas in which there is established a Health Authority, we advise the setting up of a Local Medical Advisory Council, consisting of, say, 10 to 20 members, the number varying according to the needs of the area. This Council should be elected periodically by and from all the registered practitioners resident in the area by means of the postal vote or otherwise, and the Health Authority might be made responsible for conducting the election. The Principal Medical Officer and the two Chief Assistant Medical Officers (as defined below) should be ex-officio members of this Advisory Council.

The administrative head of the medical service of the area will be the Principal Medical Officer of the area, with two Chief Assistants, his staff being composed of a varying number of assistant medical officers and of

the heads of the various special and ancillary services in the area. The local Medical Advisory Council is to have power to appoint committees for special purposes.

Details of Certain Forms of Provision.

In the sixth section follows the provision to be made under the headings of a systematised scheme for (*a*) Laboratory Services; (*b*) Dental Services; (*c*) Maternity and Child-Welfare Services; (*d*) Physical Culture; and (*e*) Recuperative Centres. The Laboratory Services at the primary centres will give facilities to the general practitioner, while the staffing will be in the hands of the director of the laboratory at the secondary centre, with which it will be in communication by telephone. It is further suggested that the laboratories, both at the primary and the secondary centres, should be linked up with a special laboratory at each University centre.

The Report closes with a full recognition of the value of physical culture and remedial physical treatment and of recuperative centres, to be used either for restorative or preventive purposes.

Summary of Recommendations.

In the seventh section there is given a summary of the effect of the various recommendations as to the elements which should, in the view of the Council, be included in schemes for the systematised provision of medical and allied services for the inhabitants of a given area. The summary is to be understood, not as governing or placing an interpretation upon the fuller paragraphs of the Report, but only as drawing attention in a conveniently brief form to the main conclusions. It is recommended that schemes should include provision for the following services and personnel:—

Services and Personnel.

A.—*Domiciliary* (pars. 18 to 35) (including both curative and preventive work). Personnel: Doctors, pharmacists, nurses, midwives, health visitors and other officers of the health authority.

B.—*Primary Health Centres* (pars. 36 to 52), including medical, surgical, and maternity beds; out-patient clinics; dental clinics; accommodation for equipment needed for treatment and investigation; accommodation for the work of communal services; accommodation for workers in ancillary services; ambulance service. Personnel: General practitioners, visiting consultants and specialists, officers engaged in communal services, visiting dental surgeons, workers in ancillary services.

C.—*Secondary Health Centres* (pars. 53 to 73), including facilities for curative services in cases requiring highly specialised diagnosis or treatment; accommodation for the work of communal services; dental clinics; accommodation for workers in ancillary services; ambulance service. Personnel: Consultants and specialists, officers engaged in communal services, dental surgeons, workers in ancillary services.

D.—*Supplementary Services* (para. 74), including provision for facilities for specialised treatment of such conditions as tuberculosis, mental disease, &c. Personnel: Specialists in the appropriate forms of treatment, workers in ancillary services.

E.—*Teaching Hospitals with Medical Schools* (pars. 75 to 80), including facilities for treatment of cases of unusual difficulty; facilities for research; facilities for post-graduate study (including training for communal services). Personnel: Consultant, teaching, and research work, workers in ancillary services.

A closing paragraph repeats the need for the encouragement of research and the operation of a system of standardised clinical records. The chairman of the Council, Lord Dawson of Penn, and the vice-chairman, Colonel C. J. Bond, have been authorised to sign the Report on behalf of the Council.

Consultative Council on Medical and Allied Services.

The following is the list of members of the Council: The Right Hon. Lord Dawson, G.C.V.O., K.C.M.G., C.B., M.D., F.R.C.P. (*Chairman*); C. J. Bond, C.M.G., F.R.C.S. (*Vice-Chairman*); N. G. Bennett, M.B., B.Ch., L.D.S. Eng.; R. A. Bolam, O.B.E., M.D., M.R.C.P.; Victor Bonney, F.R.C.S.; H. G. Dain, M.B., M.R.C.S.; A. Fulton, M.B.; Sir William S. Glyn-Jones; T. A. Goodfellow, C.B.E., M.D., M.R.C.S.; G. E. Haslip, M.D., M.R.C.S.; T. Eustace Hill, O.B.E., M.B., B.Sc.; F. G. Hopkins, D.Sc., F.R.S.; Miss M. H. F. Ivens, M.B., M.S.; Miss Janet E. Lane-Claypon, M.D., D.Sc.; A. Linnell, M.R.C.S.; J. A. Macdonald, LL.D., M.D.; E. W. Morris, C.B.E.; John Robertson, C.M.G., O.B.E., M.D.; T. W. Shore, M.D., M.R.C.S.; Sir William A. Tilden, D.Sc., F.R.S.

THE FIRST REPORT OF THE WELSH CONSULTATIVE COUNCIL.

THE Welsh Consultative Council is a composite body, comprising not only representatives of the Medical Profession, but also of National Insurance, and of Local Health Administration. Under the chairmanship of Sir Edgar Jones, it has with commendable rapidity presented its first Report, which sets forth how systematised provision may be made for improving and maintaining the health of the Principality.

The object is to ensure that sufficient and efficient medical and nursing services of all kinds are available to the community. The plan proposed is to divide the country into medical areas, each with a main medical centre. For instance, in the south Cardiff would form one medical centre and Swansea another. Each area would then be subdivided into districts according to convenience of geographical position and transit facilities. Each district would have an institute, which would act as (1) a general medical and surgical hospital for in- and out-patient work; (2) a centre for maternity and infant welfare, school, tuberculosis, dental, venereal, and other clinics; (3) a medical institute with laboratory, library, record and research department, and facilities for scientific meetings; (4) a centre from which nursing services, health visiting, and home helps would be directed; (5) a base for systematised motor ambulance service; and (6) a centre for public health administration; in addition, out-station clinics would be needed. The clinical work of the institute would be conducted by the medical practitioners of the district (suitably remunerated for their services), who would contribute to the institute and obtain from it regular information as to the health of the district. Unusual and difficult cases would be either transferred to the main medical centre, or a consultant from there would be called up to the institute. Secondary institutes on a smaller scale would be required in certain districts, modified to meet local needs. These would be based on the main institute of the district, just as this in its turn would be based on the medical centre for the area. General hospitals, Poor-law infirmaries, and cottage hospitals already in existence could be utilised and coördinated forthwith. Asylums, fever hospitals, convalescent homes, and the like would be linked up with this scheme of the medical service. The way in which the scheme would apply in three typical areas is set forth in the Report: the Aberdare Valley is taken to represent an industrial and urban district; East Carmarthenshire, including Llanelly and the valley up to Ammanford, represents a combined industrial and rural district; and the County of Merioneth a purely rural district. Due weight is given in the Report to the need for after-care treatment and for holiday homes for the tired whose condition is not yet pathological. Open-air schools are advocated for healthy children as well as for defective; fortunately they have the advantage of being cheap to construct. The need for pit-head baths and washing facilities for factories is emphasised. Standards are suggested as to the personnel required. One qualified dentist is held to be needed for every 4000 population; one doctor for every 400 homes in urban communities or 300 homes in rural; one health visitor per 1000 houses in populous centres, and one per 500 to 750 houses in less populous districts. Clearly this personnel is not available to-day, but the Report supplies a standard to be aimed at. The claims already put forward by Cardiff are that many of the proposals are only what have for some years been in operation in that city, and from Merthyr that very little modification of existing medical services would be needed to bring them into accord with the suggestions in the Report, indicate that the plan put forward is essentially practical. It makes use of all available medical service, coördinates it into a workable organisation, and indicates where addition to the service would be needed.

The Report brings out clearly two points: (*a*) there is an entire lack of organisation in medical service to-day; and (*b*) the personnel and institutions already in existence, if properly organised, would go far to meet the needs of an efficient service. Organisation of personnel and institutions already in existence is not an expensive matter, and this part of the programme could be put into operation forthwith.

SUBSEQUENT to a meeting of the Faculty of Medicine on May 22nd the Vice-Chancellor of the University of Brussels presented the medal of honour of the University to Lord Dawson, Sir Leslie Mackenzie, and Sir William R. Smith in recognition of their services to preventive medicine.

TUBERCULOSIS.

Administrative Control of Tuberculosis.

THE Parliamentary reports already published in THE LANCET concerning Dr. Addison's scheme for the reorganisation of the tuberculosis campaign may be supplemented by the following notes. Speaking in the House of Commons on the National Health Insurance Bill he pointed out that the administration of sanatorium benefit was to be transferred from the insurance committees to local health authorities, the object of the Bill being mainly to provide for an increase in the rate of benefits under the National Health Insurance Act, in view of the fall in the value of money. He argued that this transfer would imply more efficient administration, and that it had become obvious that much of the expenditure hitherto incurred in connexion with sanatorium treatment had been wasted. It was clear, in his opinion, that it was impossible to deal with this matter unless it was undertaken by one authority competent to deal with every aspect of it. He promised, however, that there should be an opportunity for coöpting members of insurance committees, who had special experience of tuberculosis, on the new authority set up. When the clause came up for discussion at the Committee stage, it was evident that the House of Commons agreed with Dr. Addison in regard to the transfer.

Tuberculosis Settlements in Scotland.

In a circular, dated April 30th, the Scottish Board of Health reminds local authorities of the recommendations of the Inter-Departmental Committee's Report of August, 1919, on the treatment of tuberculosis. The object of this reminder is to draw the attention of the Scottish local authorities to the possible establishment of one or more village settlements in Scotland, and to intimate that at an early date a conference for the free discussion of suggestions as to action will be arranged. The Board invites definite views on the subject.

King Edward Memorial Association.

For the first time since the establishment of the King Edward Memorial Association the council of that body met at Carnarvon on April 23rd, under the presidency of Major David Davies, M.P. He announced that at last every county in Wales had joined in the anti-tuberculosis campaign—one of the few national campaigns in Wales. Referring to grants made to the Association, he noted that in Wales £56 and £79 were allotted to hospitals and sanatoriums respectively per bed, whereas in England a substantially higher grant was made. The reason at first given for this disparity was that Wales had many more beds than England. The Chancellor of the Exchequer had recently been interviewed on this matter, and though complete equality between Wales and England had not been conceded, the Government had decided to make an immediate payment to the Association of about £70,000 in respect of money already spent on hospitals and sanatoriums. The announcement was also made that under the provisions of the new National Health Insurance Bill the Association would be deprived of about £25,000 which it had hitherto received from insurance committees in respect of sanatorium benefit. It was not clear how this sum was to be replaced. A report was also submitted by the Research Advisory Committee on the extension of the research branch. The importance of this branch was emphasised, and the hope expressed that a research department would be set up in connexion with the medical school at Cardiff.

Increase or Decrease of Tuberculosis during the War.

Conflicting statements as to the increase or decrease of tuberculosis during the war are still being made, as shown by the following. At a recent meeting of the Essex Insurance Committee the Sanatorium Benefit Subcommittee called attention to the gradual and steady increase in the number of applications for sanatorium benefit from insured persons suffering from tuberculosis. For the first quarter of each of the following years, 1916, 1917, 1918, 1919, and 1920, the applications numbered 96, 122, 166, 190, and 213 respectively. Thus, in 1920, the applications were more than twice as numerous as in 1916. Again, the Countess Ferrers, speaking at a recent meeting of the National Association for the Prevention of Tuberculosis at Finsbury-circus, said that there had been a tremendous and alarming increase of tuberculosis since the war, although before the war the figures were steadily decreasing. Many similar references might be given to alarmist statements made by public speakers, some of whom quoted figures in support of their views. On the other hand, in the *British Medical Journal* for April 24th Sir Robert Philip has drawn attention to the Registrar-General's figures for Scotland. These show that the mortality from all forms of tuberculosis has exhibited a notable fall since the outbreak of the war up to the end of 1919. In 1913 the mortality from all forms of tuberculosis was 170 per 100,000 and 108 from pulmonary tuberculosis. The corresponding figures for 1919 were 129 and 88. It is particularly to be noted that during 1919 there has been a phenomenal drop in both categories—namely, from 158 for all forms of tuberculosis in 1918 to 129 in 1919. The drop in the mortality from pulmonary tuberculosis in the same period was from 107 to 88. Sir Robert Philip draws attention to a similar remarkable drop during the past year in New York State.

Is Sanatorium Benefit Permanent Benefit?

The great improvement in health experienced by the large majority of early cases, and also by a considerable proportion of slightly advanced cases who already have tubercle bacilli present in the sputum, as long as they reside at a well-conducted sanatorium, is well known to all who have had sanatorium experience. Those who can continue to live at a sanatorium as members of the professional or working staff can usually count on continued health and no return of active tuberculosis. Those also in good circumstances, or whose occupation allows them, and who do continue to live an open-air life, with comparatively light employment, have a similar prospect of good health and freedom from disease. Unfortunately, such conditions are not possible for the great majority of those who are granted sanatorium benefit. Dr. D. M. Taylor, tuberculosis officer of Halifax, has recently repeated the oft-told tale of how steadily those discharged from the sanatorium go down-hill.[1] Dr. Taylor attempted to trace the after-history of 85 persons who received sanatorium benefit in 1914. On Dec. 31st, 1919, he found that only 15 were known to be alive, 49 were dead, and 31 could not be traced. Of the 64 traced cases 8 were early and 24 moderately advanced. Six of the early cases and only 6 of the moderately advanced were found to be alive. It is difficult not to conclude that as regards four-fifths of the "benefited" the money spent on sanatorium benefit was for the most part wasted. Dr. Taylor is of opinion that by means of improved diagnosis more early cases must be found, and better after-care provided, assisted by a more sympathetic attitude of employers. He remarks on the futility of advising light out-door work, and rightly states that the ordinary work of the returned case is better than idleness. Large employers could do something in adjusting the work to the man's capacity. A great deal has been done in this way in Woolwich Arsenal for many years with considerable benefit to the returned cases.

Especially since the war the best economic use of sanatoriums has not been made. Personal and sentimental reasons too often sway even tuberculosis officers, and cases are sent to the sanatorium who should be isolated at home or sent to a home for the dying. More than one authority on sanatorium treatment has recommended that in the first place all patients should be admitted for one month only. They should not remain longer unless the medical superintendent reports that they are likely to derive permanent benefit from prolonged treatment. The one month's stay would enable

[1] See the After-Histories of Insured Persons granted Sanatorium Benefit during 1914, with a Critical Review of the Facts, The Medical Officer, April 24th.

the patient to learn the principles of open-air treatment and how to avoid infecting others when he returned home. If this recommendation were generally carried out we should get very much better economic results from sanatorium treatment.

Reports and Journals.

The fifth annual report of the Reading Tuberculosis Dispensary Care Association includes an appreciation of the valuable work done by Dr. C. C. Chidell, who acted as temporary medical officer to the Association during the war. The report gives details of the various activities of the Association, one of which has been the organisation of a small class for the education of children unfit for ordinary school attendance. The class was much appreciated, and marked improvement was shown by those of the children who attended regularly. It is greatly to be deplored that the resignation of the teacher responsible for this class has led to its temporary dissolution. Recognising the importance of special educational facilities for weakly children, the association has forwarded a resolution to the Education Committee, urging them to provide a residential open-air school.

In a recent number of the *Medical Record* Dr. Stephen J. Maher raises the question: What has the war taught us of tuberculosis? His answer shows considerable pessimism. The war, he believes, has made clearer to us the poverty of our equipment for fighting the tubercle bacillus. Comparisons, sometimes invidious, between the insufficiencies in equipment of states and countries have inevitably been made. Many hundreds of young doctors have learnt the proper use of percussion, auscultation, and the X rays. The war has emphasised the need of hospital and sanatorium care for consumptives, and the effectiveness of good nursing and of health propaganda. But beyond—nothing. The writer maintains that large medical military organisations are not capable of advancing our knowledge of tuberculosis, and that in the future, as in the past, we must put our dependence for results on enthusiastic clinicians and laboratory workers.

In the *Wiener medizinische Wochenschrift* for April 29th a report is published of a meeting on Feb. 29th of the Gesellschaft für Tuberkuloseforschung. The main discussion seems to have centred about Friedmann's turtle vaccine. Dr. Kollmann and Dr. Paltauf demonstrated microscopic sections taken from the skin and subcutaneous tissues in the neighbourhood of an infiltration provoked by an injection of the vaccine in a case of pulmonary tuberculosis. Numerous intracellular acid-fast bacilli were found in the needle track. It did not appear that the injection had been followed by a multiplication of the acid-fast bacilli introduced. Dr. M. Weiss had given about 30 injections of Friedmann's vaccine, but had only once seen suppuration follow, and in this case the favourable effect of the injection was not impaired by this complication. He rejected the suggestion that tubercle bacilli of the human type were to be found in Friedmann's cultures.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Medical Association Annual Meeting.

THE fifty-first annual meeting of the Canadian Medical Association will be held in Vancouver, B.C., from June 22nd to 25th next. The president-elect is Dr. R. E. McKechnie, Vancouver, who had been elected to the presidency in 1914 when the annual meeting, which was announced to take place at Vancouver, was cancelled owing to the outbreak of the war. Dr. J. W. Scane, Montreal, is the acting general secretary, and Dr. W. A. Clarke, Vancouver, the local secretary. The address in medicine is to be delivered by Dr. Charles Lyman Greene, St. Paul, Minn., U.S.A.; the address in surgery by Lieutenant-Colonel F. Mewburn, Calgary, Alberta; the address in genito-urinary surgery by Dr. H. H. Young, Baltimore, Md., U.S.A. At the same time as this meeting there is also to be held in Vancouver the annual meeting of the Canadian Public Health Association, the annual meeting of the Canadian Association for the Prevention of Tuberculosis, the Canadian Committee on Mental Hygiene, the National Committee for Combating Venereal Diseases, and the British Columbia Hospital Association. Many prominent medical men are expected at these meetings, not only from Canada but from Great Britain and the United States.

Canadian National Council for Combating Venereal Diseases.

The first municipal committee of the Canadian National Council for Combating Venereal Diseases was organised in Toronto late in March. The meeting was presided over by Mr. Justice William Renwick Riddell, and the following officers elected for the Toronto Municipal Committee:—Honorary president: Mr. Justice Frank Hodgins. President: Dr. Frederick W. Marlow. Secretary: Dr. Gordon Bates, Toronto. The formation of the Toronto committee was coincident with the showing of "The End of the Road," a film drama now being exhibited throughout Canada by the National Council. During the five days this "movie" was on exhibition in Toronto, some seventeen thousand people attended the meetings, at which public addresses were delivered by prominent speakers engaged by the National Council. The general scheme was outlined in which the Dominion and Provincial Governments are combining to deal with the venereal diseases problem in Canada. At first the National Council will do general educational work, so that people generally may become aware of the seriousness of the problem, after which the Government treatment-schemes are to be conducted in various parts of the Dominion of Canada. Local committees are now being formed in many parts of Canada. When the National Council has become better organised further educational and social aspects of the venereal diseases problem and treatment-schemes will be considered by the provincial governments.

Nutritional Clinics in Toronto.

Upon investigation of homes of patients attending the Malnutrition Clinics of the Hospital for Sick Children, Toronto, nurses of the Department of Health have found that the smallest income of the families employing these clinics is $17.50 and the largest $25.00 weekly, whilst the numbers in these families range from four to eight. In several of these families there are two or three children attending the clinics, all from 10 per cent. to 25 per cent. under weight for height. Difficulty is found in increasing the milk-supply owing to the inadequate income, but it has been common to find families spending their incomes on improper food, defective nourishment being often due to want of knowledge rather than to inadequate income. As evidence of the value of the organised activities of a Department of Health, the infant mortality for the five years preceding the present regime, or 1904 to 1909 inclusive, was 161 per 1000 births, the infant mortality for the next five years was 140, and in the last five years has dropped to 102, while in 1919 it was only 95.

Medical Clinic at Kingston, Ontario.

The Kingston Clinical Association, Ltd., has been incorporated with a share capital of $100,000. The object of this association is to conduct clinics of a medical character which will supply a standardised systematic examination. Specialists in each branch of medicine will be in charge and all modern science equipment will be used. This clinic will have the effect of making Kingston, the home of Queen's University and Medical College, a more important medical centre, and may prove a reply to the suggestion that the medical department of Queen's University should move to Ottawa.

Physio-therapeutic Work in Military Hospitals in Canada.

The general plan and scope of the work on physiotherapeutics in the various military hospitals throughout Canada is contained in a report just issued by the Director-General of Medical Services for the Dominion of Canada. The Canadian Army Medical Corps took

over this work from the Canadian Military Hospitals Commission on April 1st, 1918, under which commission undischarged invalided soldiers were being treated in various centres in Canada. At once a systematised scheme for hospital centres in the various military districts throughout Canada was adopted. Provision was made for building accommodation, and as well for a general plan of treatment of the invalided soldier by physio-therapeutic methods either preceding or following surgical operation. Prior to taking over this work the Canadian Army Medical Corps had a report of the methods adopted and apparatus designed and used in the special hospital at Ramsgate, England. The general scheme for treatment departments is based on that which had been found so successful in special hospitals in England. Under this scheme all large hospitals in Canada were divided into active treatment sections, where the actual surgical operative work was performed, and convalescent sections to which the patient was removed after immediate recovery from the operation, and of which these treatment departments formed a part. At least 50 per cent. of all hospital populations required and received some kind of psycho-therapeutic treatment; in special hospitals, such as the Dominion Orthopædic Centre at Toronto, the percentage has been very much higher. To show the amount of work here performed, a return for one recent month may be submitted. In St. Andrew's Military Hospital, Toronto, with a total of 16,095 treatments, they were divided as follows: Massage, 4082; electro-therapy, 1707; radiant heat and diathermy, 454; hydro-therapy, 7350; muscle function training, 676; gymnasium (all classes), 1826. In other institutions in the same recent months the amount of work can be gauged by the figures: Dominion Orthopædic Hospital, Toronto, a total of 11,507 treatments; Manitoba Military Hospital, Winnipeg, 11,399; Camp Hill Military Hospital, Halifax, N.S., 4630; St. Anne de Bellevue Military Hospital, Quebec, 23,265. Summarised: The end of the war has found the C.A.M.C. with the following organisation: A special section in every hospital, particularly devoted to physio-therapeutics, subdivided into active treatment and gymnasium work, working in the closest harmony with the surgical and medical staff.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Official Inquiry into Encephalitis Lethargica in France.

MM. Léon Bernard and Jules Renaut have brought before the Academy of Medicine the results of the epidemiological inquiry of the Ministry of Hygiene into encephalitis lethargica in France. From the 55 departments which have sent a reply 464 cases in all have been reported. The disease seems to attack adults twice as often as children, and people over 60 are only exceptionally affected. Its gravity is undoubted, since the mortality indicated in the reports is at least 30 per cent.; it may be, however, that many mild cases have escaped notice and possibly treatment. Nowhere has the epidemic been very concentrated, it has been sparsely distributed over the country. The cases are so isolated from one another in towns or in the country that most medical men will not admit the possibility of contagion, others suggest that the disease may be propagated, like cerebro-spinal fever, by means of healthy carriers, and of convalescents; in no case has direct contagion been observed. The reports are unanimous in discounting any relation between anterior poliomyelitis and encephalitis lethargica; on the other hand, in nine-tenths of the cases, the doctors point out the coincidence of cases of influenza and of encephalitis lethargica, and emphasise the possibility of a close connexion between these two maladies. It is, at any rate, interesting to note the present decline of the epidemic—70 cases in January, 206 in February, 144 in March, and 44 only in April.

Pseudo-tuberculosis.

Dr. Sergent, of the Hôpital de la Charité à Paris, who since 1914 has examined more than 30,000 soldiers for tubercle, has communicated to the Academy of Medicine an elaborate paper summarising his own careful observations. It emerges therefrom that medical men often regard as signs of early tubercle certain conditions which happily indicate only an impairment of function of the apices, easily curable if precautions are taken, but favourable to the subsequent development of tuberculosis if the subject is placed under bad conditions. Several of the reported cures of tuberculosis doubtless belonged to this category. The facts are of great interest from the recruiting point of view, since it is unnecessary to discard, discharge, or to pension those likely to be cured. The assumption of a probable cure is legitimate when respiratory troubles are limited to the apices. Among these subjects—all adults—there are included many with deformed chests, with adenoids past or present, with narrowed nasal passages, or very often diaphragmatic insufficiency. Radiography shows only deficient air entry in the apical region. Before deciding that these men are victims of early tuberculosis other diagnostic measures should be used, especially as they are often puny, starved-looking, and of light weight. Besides, the bilateral nature of the signs should be noticed, since apical tuberculosis is nearly always unilateral. Confusion should be possible only in the case of a double apical infection, and this usually presents other signs elsewhere.

May 22nd.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

On the Social Care and Treatment of Epileptics.

AT a recent meeting of the "Children's Protecting Union" Dr. Frey, professor of nervous diseases, gave a short talk on the care and treatment of epileptics. Among other things, he said that society is wholly responsible for the conditions which are the causes of epilepsy, and it is the duty of society at large to contribute to the care of these unfortunates, who are the victims of conditions created by society. More than 85 per cent. of epileptics are hereditary sufferers, and alcoholism of the parents is responsible for the great majority. It has been said that not less than one of every three children of alcoholic parents suffers from epilepsy. Colonisation of sufferers is the only way in which epileptics can be cared for properly. Dr. Frey said that in most institutions they were thrown with the insane, a condition unfair to both classes of patients. The majority of physicians are willing to admit that purely medical or surgical treatment is of little or no value except in extremely isolated cases. More has been accomplished by a hygienic mode of living, strict regulations of the habits of life, and particularly by suitable, interesting employment and surroundings.

Filth in Country Dairies.

Some shocking conditions have been discovered by Board of Health inspectors in dairies that supply Czernowitz, a city of 200,000 population. In some adjacent villages they have found buildings too filthy for the habitation of cows used for dairy purposes. Wooden floors, rotted with the milk drippings of years, over dank, foul cellars; floors of ill-fitting stone slabs laid on the earth; ancient wooden cooling tanks saturated with filth; open wooden drains and contaminated wells, are among the evils reported after inspection of a hundred small dairies. However, these dairies form only a small percentage of those that send milk to the city. The assistant inspector reported that some of the dairies are excellent in condition, and not a few are as perfect as care and science can make them. The bad cases discovered are worse than anything recently recorded, but they are isolated instances and will be improved or closed up.

Milk and Scarlet Fever.

In a recent report Dr. Popovici, medical officer of health for a large county, traced the origin of a recent spring outbreak of 71 cases of scarlet fever apparently to infected milk. The dairy farm immediately implicated was in good order, but the dairyman had supplemented

his own milk by a purchase from a purveyor who obtained his supply from 15 different sources. A child of a man employed in milking at one of these was found in a condition pointing to convalescence from scarlet fever. Another man's wife was found to have her hands and feet in a state of desquamation. Both these persons had been visiting friends in an adjacent town in which scarlet fever was prevalent. After the supply of milk from this dairy was stopped no further case of scarlet fever attributable to the dairyman's milk occurred.

Malnutrition in Children.

In Debretzin Dr. Kenezi gave an address on this subject before the Society for the Protection of Children. The first cause of the malnutrition of children was, he said, parental ignorance. The healthy conditions with which the present parents had been surrounded during childhood had been forgotten by them. Breast-milk was being superseded by condensed milk and patent foods. In many cases this was to be attributed to the fact that during the war thousands of women had to earn their livelihood, and occupied male positions which they retained even at present on account of the exorbitant prices prevailing. Though both husbands and wives were in employment they could not secure sufficient income for maintaining their families. He said that education was begun too early, and higher education was being overdone; the great social demands made on mothers were taking them away from their children. The second cause was found in disease of the children. Adenoids and tonsils were familiar examples. Disease of the parents was the third cause. This was most often lues, an old chancre in the father sometimes expressing itself in the child, as malnutrition without other symptoms. If other treatment was tried without result lues should always be suspected, and mercurials and iodides, even neosalvarsan (all borne well by children) should be ordered. In general treatment, good sleeping rooms, plenty of fresh air, suitable bed-clothing, medium underclothing, plenty of exercise, and a warm bath once a day, should be provided. School should not be begun until the seventh year. A daily nap should be taken and the child should sleep from 8 P.M. to 7.30 A.M. Food should be high in proteids and poor in carbohydrates, and the stomach should be carefully treated. Iron, quinine, and cod-liver oil were important drugs. Malnutrition should always be eliminated, if possible, in the diagnosis of obscure cases.

Nagyvárad, Transylvania.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Cmdr. R. H. J. Browne is placed on retired list, with rank of Surgeon-Captain.

ROYAL ARMY MEDICAL CORPS.

Majors relinquishing the acting rank of Lieutenant-Colonel: T. S. Coates (Brevet Lieutenant-Colonel), N. E. Dunkerton, H. V. Bagshawe (Brevet Lieutenant-Colonel).

Major C. P. Thomson retires, receiving a gratuity.

Temporary Captains relinquishing the acting rank of Major: R. Millar, H. T. L. Roberts, A. H. Macklin, W. Gemmill.

Capts. H. J. Bower and G. Jackson resign their commissions.

R. W. D. Hewson, late temporary Captain, to be temporary Captain.

W. H. Johnston, from Unattached List, T.F., to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Capt. W. J. J. Arnold (granted the rank of Major). Temporary Captains retaining the rank of Captain: N. A. A. Hughes, D. H. A. Galbraith, W. A. Coats, H. F. N. Scott, H. G. Watters, and W. Parry and G. L. Venning on ceasing to be employed as Dental Surgeons. Temp. Hon. Capt. J. F. Cooper (retains the honorary rank of Captain).

GENERAL RESERVE OF OFFICERS.

H. J. Bower, late Captain, R.A.M.C., to be Captain.

SPECIAL RESERVE OF OFFICERS.

Capts. (acting Lieut.-Cols.) T. S. Allan and J. Tait relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. A. G. Hebblethwaite resigns his commission and is granted the rank of Lieutenant-Colonel.

Major P. M. Dewar, T.D., resigns his commission and retains the rank of Major, with permission to wear the prescribed uniform.

Captains resigning their commission and retaining the rank of Captain: C. L. Meynell, W. H. Armistead, A. E. Campbell, J. Dundas, S. Havelock, H. N. Pelly, A. E. Huxtable.

Capt. F. B. Julian, late temporary Captain, R.A.M.C., to be Captain.

3rd London General Hospital: Major Sir A. W. Mayo Robson resigns his commission and is granted the rank of Colonel.

4th Northern General Hospital: Capt. F. E. Withers resigns his commission and is granted the rank of Major.

TERRITORIAL FORCE RESERVE.

Capts. C. Killick and J. A. Watt resign their commissions and retain the rank of Captain.

ROYAL AIR FORCE.

Medical Branch.—Flying Officer J. Fanning to be Flight Lieutenant.

Capts. E. T. D. Fletcher, G. C. Hall, V. I. Levy, W. A. Pocock are transferred to the unemployed list.

Dental Branch.—Capt. J. Speak is transferred to the unemployed list.

INDIA AND THE INDIAN MEDICAL SERVICE.

Home Department: Majors E. A. Walker and W. S. Nealor revert to their military duty. Major R. E. Lloyd, officiating chemical examiner to the Government of Bengal and professor of chemistry, Medical College, Calcutta, is appointed until further orders, and in addition to his own duties, Resident Medical Officer, Medical College Hospital. The Viceroy has made the following appointments of British Service officers to his staff.:—To be Honorary Surgeons: Col. C. W. Profeit, Col. H. P. W. Barrow, Bt.-Col. H. R. Blackwell, and Bt.-Col. H. B. Fawcus. Capt. P. B. Mills, civil surgeon, Ghazipur, is appointed Superintendent of the Prison, Fatehgarh, and Captain L. A. P. Anderson is appointed to hold Civil Medical Charge of the Allahabad district during the absence on leave of Lieut.-Col. R. G. Turner. Lieut.-Col. D. W. Sutherland is appointed Honorary Surgeon to the Viceroy. Major F. W. Sumner is appointed Civil Surgeon, Cawnpore. Major C. H. Barber, professor of medicine, King George's Medical College, Lucknow, is transferred to Aligarh. Lieut.-Col. A. W. R. Cochrane is transferred from Meerut to Agra as Civil Surgeon. Major J. S. O'Neil is to hold charge of the civil surgery of Meerut, vice Lieut.-Col. A. W. R. Cochrane, transferred. Lieut.-Col. E. J. O'Meara, civil surgeon and principal, Medical School, Agra, is granted one year's leave. Lieut. F. W. Mathews, on reserve duty, Allahabad, to be Superintendent, Central Prison, Naini, Allahabad, vice Major C. E. Palmer, granted leave. Lieut.-Col. W. Young, civil surgeon, Lucknow, to be Professor of Midwifery, King George's Medical College, Lucknow, in addition to his own duties. The Viceroy has selected Lieut.-Col. H. Austin Smith, surgeon to His Excellency for the appointment of Inspector-General, Civil Hospitals, Bihar and Orissa, in place of Col. G. J. H. Bell, appointed to hold temporarily the post of Inspector-General, Civil Hospitals, Burma, pending appointment of a permanent successor. Major J. D. Sandes officiates as Professor and Second Physician, Medical College, Calcutta, vice Lieut.-Col. D. M. C. Cay granted eight months' leave. Lieut.-Col. A. W. R. Cochrane is nominated a member of the United Provinces Medical Council, vice Lieut.-Col. G. T. Birdwood, resigned.

THE HONOURS LIST.

Major F. J. Collings, Canad. A.M.C., has been appointed an officer of the Most Excellent Order of the British Empire, for "valuable services rendered in connexion with military operations in Siberia"; and Asst. Surg. H. L. Sargent, East Afr. Med. Serv., has been awarded the Meritorious Service Medal for "valuable services rendered in connexion with operations against the Northern Turkana and kindred tribes."

BROUGHT TO NOTICE.

The names of the following medical officers have been brought to notice for valuable services rendered in the places named:—

North-West Frontier of India.—Col. W. E. Hardy, I.M.S.; Lt.-Col R. J. W. Mawhinny, C.B., R.A.M.C.; Maj. W. T. McCowen, I.M.S. Col. A. E. Tate, C.M.G., A.M.S. (R.P.).

South Persia.—Lt.-Col. (Temp. Col.) H. Burden, C.I.E., I.M.S.; Capt. (Temp. Lt.-Col.) H. R. B. Gibson, I.M.S.

Black Sea.—Temp. Capt. G. G. Bruce; Temp. Capt. (acting Major) A. Dick; Temp. Capt. J. Elder; Temp. Capt. (acting Major) J. D. Gunn; Temp. Capt. G. B. Wild; Capt. R. Chevassut; Capt. F. B. Jago; Capt. G. E. Tilsley; and Capt. W. A. Weatherhead, all of the R.A.M.C.

Kurdistan and Persia.—Capt. (acting Major) J. M. Weddell, R.A.M.C.; Lt.-Col. (Temp. Col.) J. A. Hamilton, C.M.G., I.M.S.

FOREIGN DECORATIONS.

Italian.

Order of the Crown of Italy.—Cavalier: Hon. Col. Sir A. Ogston, K.C.V.O., R.A.M.C. (T.F.); Bt. Maj. A. D. Griffith, R.A.M.C. (T.F.).

Serbian.

Order of the White Eagle "with Swords."—1st Class: Col. Sir A. E. Wright, K.B.E., C.B., F.R.S., late A.M.S. *4th Class:* Maj. C. L. Dunn, I.M.S.; Surg. Lt.-Col. B. Pares, C.M.G., D.S.O., Royal Horse Guards. *5th Class:* Temp. Capt. E. W. Archer, R.A.M.C.; Temp. Capt. G. H. Brown, R.A.M.C.; Temp. Capt. G. S. Coghlan, M.B.E., S.Afr.M.C.; late Temp. Capt. A. M. Fisher, R.A.M.C.; Temp. Capt. J. W. Grice, R.A.M.C.; Temp. Capt. E. E. Herga, M.C., R.A.M.C.; Temp. Capt. O. S. Kellett, R.A.M.C.; Temp. Capt. F. H. Looney, R.A.M.C.; Temp. Capt. E. H. Rainey, R.A.M.C.; Capt. G. W. Rose, R.A.M.C. (S.R.); Temp. Capt. W. J. Symes, R.A.M.C.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING APRIL, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6·7 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 8·5, 7·7, and 7·1 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Paddington, Hammersmith, the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, and the City of London; and the highest in Shoreditch, Bethnal Green, Poplar, Battersea, Wandsworth, and Deptford. One case of small-pox was notified during April from the Port of London. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionally most prevalent in Shoreditch, Bethnal Green, Poplar, Southwark, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 1795 scarlet fever patients at the end of the month, against 2476, 2266, and 1981 at the end of the three preceding months; the weekly admissions averaged 223, against 280, 279, and 240 in the three preceding months. Diphtheria was somewhat less prevalent than in April; the greatest prevalence of this disease was recorded in St. Pancras, Shoreditch, Bethnal Green, Poplar, Battersea, and Wandsworth. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1971, 2003, and 1964 at the end of the three preceding months, numbered 1937 at the end of April; the weekly admissions averaged 221, against 263, 240, and 260 in the three preceding months. The prevalence of enteric fever was about half that in the three preceding months; of the 22 cases notified during the month, 3 belonged to Kensington, 3 to Islington, 2 to Marylebone, 2 to Lambeth, and 2 to Wandsworth. There were 29 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 25, 30, and 38 at the end of the three preceding months; the weekly admissions averaged 4, against 4, 6, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Holborn, Finsbury, Bethnal Green, Greenwich, and Woolwich. The 39 cases of puerperal fever included 7 in Wandsworth, 5 in Battersea, 4 in Lambeth, and 3 in Islington. The 21 cases of cerebro-spinal fever included 3 in Islington, 3 in Bethnal Green, and 2 in Southwark, while the 2 cases of poliomyelitis belonged to Lambeth.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended May 1st. the deaths of 5145 London residents were registered, equal to an annual rate of 15·4 per 1000; in the three preceding months the rates had been 14·6, 16·6, and 17·6 per 1000. The

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	1	930	969	—	22	—	39	201	21	2	2245	6·7	1	223	18	69	125	9	62	507	1·5	5145	15·4
West Districts:																								
Paddington	143,938	—	23	25	—	1	—	1	3	—	—	53	4·8	—	3	—	2	1	—	5	11	1·0	153	13·9
Kensington	157,886	—	32	40	—	3	—	—	7	1	—	83	6·9	—	7	1	3	2	—	5	18	1·5	176	14·5
Hammersmith ...	130,981	—	17	15	—	1	—	2	7	1	—	43	4·3	—	7	—	4	2	—	1	14	1·4	147	14·6
Fulham	152,543	—	38	29	—	1	—	2	8	—	—	78	6·7	—	6	—	4	5	1	1	17	1·5	154	13·2
Chelsea	60,573	—	14	10	—	1	—	—	3	—	—	28	6·0	—	1	—	—	—	1	—	2	0·4	43	9·3
City of Westminst'r	127,533	—	23	13	—	1	—	—	3	—	—	40	4·1	—	4	—	—	—	1	2	7	0·7	129	13·2
North Districts:																								
St. Marylebone ...	97,953	—	16	10	—	2	—	—	8	—	—	36	4·8	—	1	2	2	1	—	—	6	0·8	123	16·4
Hampstead	88,012	—	10	15	—	—	—	—	4	—	—	29	4·3	—	1	—	—	2	—	—	3	0·4	69	10·2
St. Pancras	219,434	—	31	59	—	1	—	1	7	1	—	100	6·0	—	18	1	2	10	—	2	33	2·0	269	16·0
Islington	323,034	—	51	76	—	3	—	3	9	3	—	145	5·9	—	14	—	8	14	—	5	41	1·7	408	16·5
Stoke Newington...	50,954	—	5	11	—	—	—	—	—	—	—	16	4·1	—	—	—	—	3	—	1	4	1·0	63	16·1
Hackney	216,736	—	35	55	—	1	—	2	12	—	—	105	6·3	—	17	1	3	9	—	2	32	1·9	278	16·7
Central Districts:																								
Holborn	38,156	—	7	5	—	—	—	—	3	—	—	15	5·1	—	—	—	—	1	—	2	3	1·0	57	19·5
Finsbury	75,291	—	13	13	—	—	—	—	10	1	—	37	6·4	—	2	—	2	1	—	—	5	0·9	94	16·3
City of London ...	13,893	—	—	2	—	—	—	—	1	—	—	3	2·8	—	—	—	—	—	1	1	2	1·9	18	16·9
East Districts:																								
Shoreditch	98,134	—	34	28	—	1	—	—	1	1	—	65	8·6	—	4	—	4	3	—	3	14	1·9	168	22·3
Bethnal Green ...	110,085	—	46	38	—	—	—	2	9	3	—	98	11·6	—	16	1	1	10	—	2	30	3·6	168	19·9
Stepney	232,506	—	63	39	—	—	—	2	13	1	—	118	6·6	—	10	1	—	18	—	4	33	1·9	334	18·7
Poplar	153,644	—	49	43	—	—	—	2	6	1	—	101	8·6	—	7	1	2	7	—	2	19	1·6	199	16·9
South Districts:																								
Southwark	179,971	—	54	36	—	—	—	1	11	2	—	104	7·5	—	16	1	1	3	1	1	23	1·7	229	16·6
Bermondsey	124,239	—	28	16	—	—	—	2	4	—	—	50	5·2	1	12	—	1	5	—	—	19	2·0	175	18·4
Lambeth...	282,322	—	75	65	—	2	—	4	6	1	2	155	7·2	—	15	3	5	6	—	5	34	1·6	345	15·9
Battersea	159,316	—	37	47	—	1	—	5	7	—	—	97	7·9	—	17	1	2	4	1	2	27	2·2	181	14·8
Wandsworth... ...	333,693	—	87	107	—	2	—	7	18	1	—	222	8·7	—	13	2	10	4	1	5	35	1·4	322	12·6
Camberwell	273 802	—	50	67	—	—	—	2	8	1	—	128	6·1	—	16	3	5	6	1	4	35	1·7	308	14·7
Deptford...	111,205	—	42	23	—	1	—	—	8	—	—	74	8·7	—	3	—	1	2	—	4	10	1·2	115	13·5
Greenwich	98,484	—	28	20	—	—	—	—	8	1	—	57	7·5	—	4	—	2	4	—	—	10	1·3	118	15·6
Lewisham	167,754	—	46	36	—	—	—	—	5	1	—	88	6·8	—	1	—	3	—	—	—	4	0·3	170	13·2
Woolwich	136,237	—	36	26	—	—	—	1	12	1	—	76	7·3	—	8	—	2	2	1	3	16	1·5	132	12·6
Port of London ...	–	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

death-rates ranged last month from 9·3 in Chelsea, 10·2 in Hampstead, 12·6 in Wandsworth, 12·6 in Woolwich, 13·2 in Fulham, 13·2 in Lewisham, and 13·2 in the City of Westminster, to 16·9 in the City of London, 16·9 in Poplar, 18·4 in Bermondsey, 18·7 in Stepney, 19·5 in Holborn, 19·9 in Bethnal Green, and 22·3 in Shoreditch. The 5145 deaths from all causes included 507, which were referred to the principal infectious diseases; of these, 1 resulted from small-pox, 223 from measles, 18 from scarlet fever, 69 from diphtheria, 125 from whooping-cough, 9 from enteric fever, and 62 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, St. Marylebone, Hampstead, Finsbury, and Lewisham, and the highest in St. Pancras, Bethnal Green, Bermondsey, and Battersea. The death from small-pox was that of a Norwegian sailor, and occurred at the South Wharf Shelter of the Metropolitan Asylums Board, situated in Bermondsey. The 223 deaths from measles were 27 fewer than the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in St. Pancras, Hackney, Bethnal Green, Southwark, Bermondsey, and Battersea. The 18 fatal cases of scarlet fever exceeded the average by 2, and included 3 in Lambeth, 3 in Camberwell, 2 in St. Marylebone, and 2 in Wandsworth. The 69 deaths from diphtheria were 19 above the average number; the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Islington, Finsbury, Shoreditch, and Wandsworth. The 125 fatal cases of whooping-cough showed a decline of 18 from the average; this disease was proportionally most fatal in St. Pancras, Islington, Stoke Newington, Bethnal Green, Stepney, and Poplar. Nine deaths from enteric fever were registered during the month, against an average of 5. The 62 fatal cases of infantile diarrhœa were 5 in excess of the average; the greatest proportional mortality from this disease occurred in Paddington, Kensington, Holborn, the City of London, Shoreditch, and Deptford. In conclusion, it may be stated that the aggregate mortality in London during April from these principal infectious diseases was 2·7 per cent. below the average in the corresponding period of the five preceding years.

(Week ended May 22nd, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 14·2, 13·8, and 13·8 in the three preceding weeks, fell to 13·2 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 12·0, or 0·5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 4·3 in Eastbourne, 4·5 in Enfield, and 5·4 in Oxford, to 20·3 in Blackburn, 23·7 in Sheffield, and 25·2 in Tynemouth. The principal epidemic diseases caused 291 deaths, which corresponded to an annual rate of 0·9 per 1000, and comprised 103 from measles, 60 from whooping-cough, 56 from diphtheria, 53 from infantile diarrhœa, 14 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 1·6 in Swansea, 1·7 in Wimbledon and in Blackburn, 1·8 in Newport (Mon.), and 3·0 in Wigan; and whooping-cough of 1·6 in Middlesbrough and 1·9 in Carlisle. The deaths from influenza, which had been 202, 201, and 216 in the three preceding weeks, fell to 211, and included 72 in Sheffield, 31 in London, 10 each in Birmingham and Manchester, and 8 in Rhondda. There were 1894 cases of diphtheria, 1734 of scarlet fever, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1916, 1757, and 6 respectively at the end of the previous week. The causes of 31 of the 4491 deaths in the 96 towns were uncertified, of which 4 were registered in Birmingham, and 3 each in London, Liverpool, and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 18·3, 18·4, and 16·9 in the three preceding weeks, fell to 15·6 per 1000. The 375 deaths in Glasgow corresponded to an annual rate of 17·6 per 1000, and included 17 from influenza, 12 from measles, 6 each from small-pox and infantile diarrhœa, 5 from diphtheria, 4 from whooping-cough, and 3 from scarlet fever. The 76 deaths in Edinburgh were equal to a rate of 11·6 per 1000, and included a fatal case each of diphtheria and infantile diarrhœa.

Irish Towns.—The 171 deaths in Dublin corresponded to an annual rate of 21·5, or 0·9 per 1000 above that recorded in the previous week, and included 15 from whooping-cough, 6 from measles, and 2 each from infantile diarrhœa and influenza. The 124 deaths in Belfast were equal to a rate of 15·7 per 1000, and included 6 from infantile diarrhœa, 3 each from scarlet fever and influenza, 2 from diphtheria, and 1 each from measles and whooping-cough.

Correspondence.

"Audi alteram partem."

HELMINTHIC INFECTIONS IN RELATION TO PELLAGRA.

To the Editor of THE LANCET.

SIR,—I have read with very great interest, in the issues of THE LANCET for May 1st and 8th, the important and suggestive articles on pellagra by Dr. A. D. Bigland and Dr. J. I. Enright, together with the informing leading article summarising present views in regard to the difficult and debatable question of the ætiology of this disease. While Dr. Bigland had no need whatever to refer to the quotation of the late Dr. Sandwith in connexion with his own article, I am only too conscious that it may be held to apply to my case in venturing to suggest that helminthic infections may constitute a definite ætiological factor in pellagra. I am emboldened, however, to take this risk because of the arresting fact, which I learn for the first time from Dr. Enright's paper, that an outbreak of pellagra occurred also among the well-fed German prisoners at the beginning of 1919. As stated in the report of the Committee appointed to investigate the outbreak among the Turkish prisoners in the autumn of 1918, there was no occurrence of pellagra among the Germans up to the time when the Committee had concluded its inquiry.

When I had the honour of being appointed to undertake the protozoological and other incidental parasitological work for the Commission, I approached the subject of pellagra, which was entirely new to me, with a mind perfectly open and unbiased. I mention this, because the first thing that struck me on studying the available literature was the vehement manner in which the partisans of the two chief rival views—namely, the parasitic-infective hypothesis and that of dietetic insufficiency—maintained and defended their respective attitudes. In the course of my own examinations I obtained not the slightest indication that any protozoan, spirochætal, or other minute organism could be incriminated in connexion with the disease. The one finding which did make considerable impression on my mind was the prevalence of helminthic infections, particularly of ascaris, and in a lesser degree of trichocephalus. The actual percentage findings of the eggs in the stools of Turkish pellagrous cases were: ascaris, 31·5 per cent.; and trichocephalus, 21·6 per cent.; and, as I state in my own section of the report, "these figures by no means indicate the real proportion of Turkish prisoners infected, which I estimate to have been certainly twice as high and probably more," for reasons there given. (Eggs of ankylostomum, it is to be noted, were not found in any case.) But I also examined, as controls, the stools of German prisoners in the hospital—men in a nominally normal condition as regards their bowels—and found that they were also infected to a considerable extent with the above nematodes, although in a less degree than were the Turks. Ascaris was found in 15 per cent. of the stools examined, and here again the actual proportion was undoubtedly much higher. This observation surprised me somewhat, because these eggs occurred only most exceptionally in British stools.

As a result of my own work and of the entirely negative findings on the bacteriological side I formed the opinion that if any parasite were concerned in the causation of the disease it must be one or more of these very well-known intestinal nematodes. Could ascaris (say) be regarded as a possible ætiological factor? I knew that ascaris, as a cause of any general or systemic disturbance, was not usually considered seriously. And, of course, there could not be in any case between these nematodes and pellagra the sole binding relation of cause and effect comparable to that obtaining in the case of many microbic diseases. Because such helminthic infections are known to occur in many

districts and countries where pellagra is never or only rarely met with.

The view I ultimately put forward in the "Summary and Conclusions" of my report was that these nematode infections are to be regarded as an additional or contributory factor in the ætiology of the disease, perhaps especially important as a predisposing cause. I was precluded by the scope of the report from referring to other work or entering into consideration of epidemiological data in connexion with pellagra; but it is not out of place to indicate briefly here the reasons and the train of thought which led me to make the above suggestion. The following is taken largely from that portion of the draft of my report which had—unfortunately, I thought—to be omitted.

Upon consideration of the literature at hand, which dealt mainly with recent work on pellagra in America, I saw that Goldberger's experiments showed, in most definite and convincing manner, that dietetic insufficiency could be a most important, and probably was indeed a decisive causal factor. The point was, was it the only, all-sufficing one? Because, on the other hand, there was a considerable body of opinion which maintained that a deficiency in diet could not be regarded as, at any rate, the sole essential ætiological factor. This school of thought (represented, among others, by Siler, Garrison, and McNeal) considered that some infective agency was also primarily concerned. In support of this view a number of epidemiological data had been brought forward, having reference mainly to the localised distribution of outbreaks and to indications connecting the cases with their immediate environmental surroundings and conditions. It seemed to me that much of this evidence had weight, and that the most reasonable and natural explanation was that offered—namely, the occurrence of some infective agent. It interested me considerably to find that the modern tendency was to abandon the hypothesis of transmission by a biting insect—that is to say, through inoculation—and to favour transmission through the medium of the soil—i.e., the parasite was regarded as an intestinal one, conveyed by accidental contamination of food, drink, and so on. Stress had been laid recently upon a close association of pellagra with inefficient sewage disposal, and it had been stated that improved sanitation in certain districts had been followed by a marked reduction in the incidence of this disease.

I thought that if a nematode infection were implicated it would fulfil admirably every condition required to satisfy the data furnished. There was only one biological point as to which I was a little uncertain (to which reference is made below). Lastly, I read of a statement by Cole which seemed so *àpropos* of my idea that I cannot refrain from citing it.[1] Though I am well aware that an isolated observation has little scientific value, it is possible that this one may be of importance in another direction than that indicated by the author. Cole believed that the best treatment for pellagra was the administration of calomel, santonin, and castor oil, and based his faith in these remedies upon the statement of a woman whose three children were suffering from round-worms and pellagra. She gave them vermifuge for the worms, and was surprised to find that not only the worms but also the pellagra disappeared!

I next tried to ascertain what evidence there was of an association between the occurrence of nematodes and pellagra. Very few statistics on this point appeared to have been collected by American workers. The one paper which I could find was by Ridlon, who, in examining the stools of 95 patients, observed *Necator* (*Ankylostomum*) *americanum* in 10 and strongyloides in 2; no ascaris eggs were noted. This worker, however, does not appear to have made his observations in the most suitable manner for the detection of eggs. (He emulsified a small portion of the fæces in a large drop of salt solution and examined with an oil-immersion objective. This method will serve quite well for the detection of minute flagellates, for instance, but not nearly enough ground would be covered to say whether eggs were absent or present. I always examined four cover-slip preparations, which contained much more fæcal matter than those made for the detection of protozoa, with a low-power objective.) On the other hand, the frequent association of hookworms and pellagra had been noted in America.

As for Egypt generally, as was well known, the natives are infected to a large extent not only with ankylostomum, but with ascaris, and pellagra is rife amongst them. Indeed, Sandwith and Pell have suggested that the presence of helminthic infections may be a more important contributory factor in the causation of pellagra than has hitherto been thought. The prevalence of a specific ascaris infection is referred to by Dr. R. G. White, of the Public Health Department, Cairo, in his report on the outbreak of pellagra in the Armenian Refugee Camp at Port Said in 1916–17. And Professor W. H. Wilson himself informed me that during a heavy pellagra season in 1917 in the Egyptian convict prison at Tourah (?), a large percentage of ascaris infections was observed. As regards Italy, it has been stated (Blanchard) that nematode infections are general and widespread; and Low and Sambon have remarked that a distinct eosinophilia is frequently noticeable in cases of pellagra. In short, the cosmopolitan distribution of such nematodes as ascaris would agree perfectly well with the distribution of pellagra, which is now becoming recognised as almost cosmopolitan, even though, in some districts, its occurrence is rare and sporadic. The coincidence is, at any rate, very much closer than in the case of pellagra and any particular variety of biting-fly.

At this stage I laid the results of my observations, and the opinion at which I had arrived, before Major A. Ferguson,[2] under whose general direction, as head of the Bacteriological Laboratory Service, E.E.F., my work was carried out. He kindly offered to introduce me to Major F. H. Stewart, I.M.S., then in Cairo, in order that I might ascertain directly the latest known facts concerning the biology of ascaris, and the views held as to its pathological effects. I wish very much to thank Major Stewart for the information he gave me, both then and in a more recent conversation which I have been able to have with him.

The point about the biology which I was particularly anxious to know was whether the eggs, if ingested by another man shortly after being passed in the fresh fæces, would develop. Major Stewart's answer was decidedly in the negative. The eggs, unripe when passed, require, for the development of the embryo, to spend a period of time in a moist situation, with free access to air; otherwise they are not infective. The importance of this fact is at once recognised in connexion with the so-called crucial transmission-experiment of Goldberger, in which this author claimed to have shown by feeding volunteers with all manner of materials from patients that there was no transmissible factor concerned in pellagra. Precisely with regard to ascaris (and quite likely other nematodes as well), the experiment would fail, for the above reason, although eggs might be present in the fæces! But the pollution of damp soil, together with untidy habits, would be the surest means of bringing about contaminative infection. Much, also, has been made of the argument that as attendants on patients suffering from pellagra (in institutions, &c.) do not thereby become themselves pellagrous the disease is not "infectious"; but, again for the above reason, neither would they, if of cleanly habits, contract a nematode infection.

With regard to the effects of ascariasis, I was impressed by finding that Major Stewart took a more serious view of these than I had thought likely. The gist of what he told me has been succinctly stated by him in a recent paper[3] in the following words: "It may be doubted whether the importance of this disease [i.e., intestinal ascariasis] is sufficiently recognised in State medicine. There is reason to suppose that a great deal of the debility of the natives of the tropics is due to ascariasis, and that this disease is at least equal to ankylostomiasis in economic importance."

The above, then, were the data which led me to put forward a view which might be regarded as a combination of the two chief hypotheses. I suggested that, in addition to one essential factor, deficient nutrition, another might be necessary—namely, the presence of a helminthic infection, either as a predisposing or as an associated cause. (I thought it quite likely that more than one of these nematodes, e.g., ankylostomum, as well as ascaris might be implicated.) However, if I may so express myself, the general atmosphere in which the Commission was by now labouring was so favourable and conducive to the rapid and luxuriant growth of the dietetic-deficiency hypothesis that any other plant had scarcely room to raise its tender little head, still less to thrive. In other words, biologic protein value (B.P.V.) deficiency was by this time regarded as of itself an all-sufficient explanation, the

[1] Abstract in Trop. Dis. Bull., vol. viii., 1915, p. 347.

[2] I desire to take this opportunity of saying how greatly I feel I am indebted to the late Major Ferguson for all his valuable assistance and the unfailing consideration which he showed to me while I was with the E.E.F. By his death medical science in Egypt has suffered a severe loss. Merely to read his report of the work done by himself and Captain Campbell for the Pathological Section of this same Commission, a report which was written while he was actually far from well, is to gain instant appreciation of the excellence of his work. Not only as a scientific statement, but also on account of its literary style, this analysis compels one's admiration.

[3] Parasit., 10, 1918, p. 197.

one essential causative factor; and, indeed, it certainly did seem fully capable of explaining all the facts relating to the outbreak amongst the Turkish prisoners of war. Hence, as a one-factor hypothesis appeared sufficient, it seemed to the Commission unnecessary to include any other factor in possible explanation of the ætiology of the disease; and the Commission did not support me in thinking that any direct or special importance might be attached to the occurrence of helminthic infections in this connexion.

As stated at the commencement of this letter, I am induced to bring forward again the above view because of the remarkable fact that pellagra occurred subsequently among the well-fed German prisoners. According to Enright, there can be no question that the diet of the Germans possessed an adequate B.P.V. This being so, it does appear to me that—to pursue the above simile—the robust plant so well nourished and watered in Cairo outgrew its strength and is in need of pruning. Its growth was perhaps a trifle too rampant; that is all. Because it can hardly be doubted that this plant will prove most productive of valuable fruit. As the review in THE LANCET points out, the work of the dietetic and biochemical sections of the Commission will provide a landmark in the history of the ætiology of pellagra. Therefore, I think Enright is far too hasty in saying that the food-deficiency "theory" is "exploded"; but he himself has distinctly qualified this statement in a preceding sentence. On the other hand, I entirely agree with him in thinking that, as the only essential causative factor, this hypothesis is seriously threatened. "Obviously, something more than a dietetic factor is involved," and I myself am now still more strongly of the opinion that this additional factor may well be a helminthic infection.

Consider the case of these German prisoners. Even though it is quite likely that some of those who became pellagrous had defective digestive assimilation as a result, say, of precedent bacillary dysentery, that factor, as Enright clearly points out, could not of itself account for an outbreak of pellagra. Now, what other possible factor had the Germans in common with the Turkish prisoners? They had a prevalent nematode infection, well-marked, if not to such a high degree as in the case of the Turks. Again, since the well-fed Germans contracted pellagra, why did this disease never occur among the British troops? Was it because there were practically no intestinal helminthic infections amongst the latter? During my sojourn in the East I examined altogether something like 5000 British stools, and during the whole period of nearly three years at no time were eggs found except on the rarest occasions; their occurrence was so exceptional that I did not consider it necessary to keep any figures, but I see that O'Connor has tabulated the helminthic infections found in the course of his examinations of British stools.[4] Out of 2082 cases he observed ankylostomum in 1, trichocephalus in 9, and ascaris in 0! Adding them all together the percentage is under 0·5; doubling or even quadrupling this figure (for under-estimation) the percentage is still only 1 or 2. Contrast this British percentage with my estimate of anything up to at least 30 per cent. of ascaris alone in the case of the Germans I examined. Is it not likely that this great difference has some significance?

I wish now to refer, although with much diffidence, to another side of the question. In the first place, the fourth conclusion arrived at by Colonel F. D. Boyd, in his valuable report on the clinical aspect of pellagra as seen among the Turks, is stated as follows:—

"The clinical features of the disease are those of a profound suprarenal inadequacy, but there is no sufficient evidence to prove how this inadequacy is produced."

I abstract next the following sentences from Dr. Bigland's paper:—

"This brings me to the second supposition regarding the ætiology of pellagra—viz., the presence of some toxic substance. I would suggest that such a toxin is present in these cases, and that it acts upon the intestines or the contents thereof in such a way that protein is not assimilated as it ought to be. ..... It only remains to discuss what is the nature of this hypothetical toxic substance. It must enter the body from without. It cannot be the result of a metabolic error, because the disease occurs in epidemics. ..... Its probable habitat is the digestive tract. ..... *It may be, however, that this toxic substance makes its effect by attacking the endocrine organs, especially the suprarenals*" (the italics are mine).

On reading this, the question naturally occurred to me, Could ascaris and other nematodes produce such a toxin? Major Stewart informed me that ascaris certainly does produce a toxin; and on looking up to see if any work had been done upon the specific effects produced by such a toxin, I came across a paper by Phillips Bedson, upon "Lésions des organes à sécrétion interne dans l'intoxication vermineuse."[5] Certain of the observations made in the course of this experimental work seem to me sufficiently important and suggestive to justify my bringing them to the notice of any who may think such a line of research is worth following up in relation to pellagra.

Bedson injected into guinea-pigs the (sterile) peri-enteric liquid [presumably the hæmocœlic fluid] of *Ascaris megalocephala* and filtered extracts of different species of tænia. The author's account is divided into two parts. One part deals with the effects of acute helminthic intoxication produced by intravenous injection of a single dose of the above toxic liquid; the other with the effects of chronic intoxication produced by successive daily doses (smaller in amount), given subcutaneously (for fuller details the reader is referred to the original). As regards the chronic intoxication, the animals did not all react in the same manner to the injections. Some remained in good health, while others became emaciated and lost weight, the loss varying in general with the duration of the experiment. The lesions were the same, whether the toxic liquid was from ascaris or from tænia. Of all the ductless glands the suprarenals showed the most important lesions, whether as a result of acute or of chronic intoxication. The thyroid gland reacted equally, but chiefly to subacute or chronic intoxication. The importance of the lesions was related rather to the number of the injections and duration of the intoxication than to the quantity of toxin injected.

Dealing with the effects of chronic intoxication on the suprarenals, the author states that at autopsy these glands were found to be congested, sometimes intensely. The lesions varied according to the manner in which the animal had reacted to the toxin. Sometimes the glands were found to have recovered from the attack (as it were)—i.e., reacted to the first injection and showed, after the lapse of some time, manifest signs of hyperfunction; in the other cases the suprarenals had not been able to resist the action of the toxin and had remained in a condition of hypofunction.

Is it possible, I would ask, that some of these helminths produce similar effects, even though, perhaps, in lesser degree, on the human suprarenals as a result of the secretion or excretion by the worm of some substance, or product of metabolism which is toxic? Admitting this possibility, the power of the suprarenal glands to react successfully to the toxic principle may vary considerably also in the human organism, as Bedson found in the case of the guinea-pig. If this be so, it will be clear, I think, that a helminthic infection might be, under certain conditions and especially when associated with dietetic insufficiency, one very important factor in causing suprarenal inadequacy and pellagra.

In conclusion, I will quote Dr. Bigland's expression of opinion: "It must not be thought that the disease is a clinical entity in the sense that it has one definite cause only in its production. It may be of the nature of a syndrome, for which more than one factor may be responsible." In some cases the importance of one factor (e.g., B.P.V.-deficiency) may predominate; in others, that of another factor (e.g., helminthic intoxication); while in still others both factors may be equally important.

I am, Sir, yours faithfully,

H. M. WOODCOCK, D.Sc. Lond.,
Lately Protozoologist to the Committee of Inquiry into the Prevalence of Pellagra among Turkish Prisoners of War.
Lister Institute of Preventive Medicine, Chelsea-gardens, S.W.,
May 18th, 1920.

[4] Journ. Trop. Med., vol. xxii., 1919, p. 166.

[5] Ann. Inst. Past., xxvii., 1913, p. 682.

SPECIFICITY AND EVOLUTION IN DISEASE.

To the Editor of THE LANCET.

SIR,—I was very much interested in reading the historical retrospect on the above subject by Sir William Job Collins in THE LANCET of May 15th. In my last annual report to the Education Committee, writing in reference to the condition of the children attending the elementary schools, on my return to duty after some four years absence, I said that—

"Owing to various causes, such as stress of the war, the food difficulty, shortage of staff, outbreaks of various diseases, &c., the health of the children and teachers has obviously suffered in many cases ..... in this connexion I might mention that the children attending the schools on the high ground at the back of St. Leonards and Hastings appeared in better health than those in the valleys. In reference to the food question, apparently the majority of children had sufficient in bulk, but it was deficient in quality, and certain essentials, such as fats and sugar, which to my mind are most important constituents for a growing child, were reduced to a minimum. ..... Personally, I am inclined to think the present epidemic of skin troubles, from which so many of the children are suffering, is in some measure due to the alteration in the diet, since it is possible owing to the constituents of the tissues themselves having become modified they are less able to withstand attacks of infective organisms; also certain microbes which are usually harmless have been able to take on pathogenic properties owing to such modification of the body tissues. The same cause might also account for other epidemics which have been so prevalent during the past year or two."

I made the above remarks with a view to emphasising the fact that certain defects among the children were apparently the result of evolution, brought about by abnormal conditions.

In another part of my report I make the statement:—

"Children do not always eat sweets on account of their attractive taste, but to supply a physiological want, more especially owing to the present shortage of sugar."

Here, again, I believe that sugar and also fats play a most important part, from the point of view of evolution, in the history of a race, not only as regards diet, but as a prophylactic against disease.

In reference to other diseases, viewed in the light of evolution, many intricate pathological conditions might find a rational explanation. Take, for instance, the ætiology of cancer, might not this be due to an attempt at asexual reproduction on the part of nature at a time of stress? Similar phenomena are known to take place in the lower forms of animal life.

I am, Sir, yours faithfully,

O. POLHILL TURNER, D.P.H. Oxon.,
Hastings, May 18th, 1920. School Medical Officer.

THE FEE FOR CONDUCTING AN AUTOPSY.

To the Editor of THE LANCET.

SIR,—Would it not be a good thing to make an effort to get the fee paid for making a post-mortem examination by order of a coroner increased? A fee of one guinea was, to say the best of it, small before the war. It is now miserably inadequate. A post-mortem examination cannot be properly made in under an hour. It has to be performed at short notice and often at an inconvenient time. It requires considerable skill to perform and to draw the right conclusions from it. In the country there are none of the facilities of a city mortuary, no skilled assistance, and very often no proper cleansing accommodation. In fact, in the country it is often hard to find anything which can be said to really facilitate the examination. I think very few will suggest that if the present fee were trebled it would be excessive.

I am, Sir, yours faithfully,

Weybridge, May 20th, 1920. J. W. ROB.

THE BRITISH SCIENCE GUILD.—The annual meeting of the British Science Guild will be held at the Goldsmiths' Hall, Foster-lane, London, on Tuesday, June 8th, at 3 P.M. Lord Sydenham, G.C.S.I., F.R.S., in vacating a presidency marked by two successful Scientific Products Exhibitions, will deliver an address on "Science and the Nation," and this will be followed by an address on "Some National Aspects of Transport" by the incoming President, Lord Montagu of Beaulieu, whose contributions to mobility of many types in India and at home seem likely to be succeeded by illustrations of mobility of quite another type in the urgent and important application of knowledge to national affairs. Applications for invitations to the meeting should be addressed to the Secretary of the British Science Guild, 6, John-street, Adelphi, London, W.C. 2.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—Examinations for the Diplomas in Psychological Medicine and Ophthalmic Medicine and Surgery of the Royal Colleges of Physicians and Surgeons will commence on June 28th and July 26th respectively. Full information can be obtained from the Secretary, Examination Hall, 8, Queen-square, Bloomsbury, W.C.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the special and ordinary First Professional Examination for the diploma of Fellow, held from May 4th to 15th, 168 candidates presented themselves, of whom 74 were approved and 94 were rejected. The following are the names and medical schools of the successful candidates:—

A. L. Abel, Univ. Coll.; H. H. Bailey, London Hosp.; J. A. Berry, Guy's; O. Brenner, Birmingham Univ.; R. St. L. Brockman, St. Bart.'s; D. J. Browne, Sydney Univ. and Middlesex; A. G. Bryce, Manchester Univ. and Middlesex; W. F. Christie, Edinburgh Univ.; E. A. Coldrey, St. Bart.'s; S. H. Cookson, Birmingham; V. M. Coppleson, Sydney Univ. and Middlesex; H. Corsi, St. Bart.'s and St. Mary's; R. K. Dadachanji, London; R. M. Dannatt, St. Bart.'s; W. M. Dickson, Edinburgh Univ.; T. F. M. Dilworth, St. Thomas's; C. F. T. East, Oxford Univ. and King's Coll.; J. A. W. Ebden, Westminster; D. J. Evans, Birmingham Univ.; G. I. Evans, St. George's; W. C. Faull, St. Mary's; A. W. Fawcett, Bristol Univ.; L. R. Fifield, London; W. D. Galloway, Guy's; A. T. Gibb, Manchester Univ.; J. W. Gilbert, Bristol Univ.; P. K. Gilroy, Cambridge Univ. and St. George's; V. B. Gokhale, Bombay and Middlesex; E. Grey, Manchester Univ. and Middlesex; A. R. Gunn, Edinburgh Univ. and St. Bart.'s; S. G. Harrison, St. Bart.'s; F. H. Healey, Birmingham Univ.; S. L. Higgs, Cambridge Univ. and St. Bart.'s; J. P. Hosford and R. W. P. Hosford, St. Bart.'s; F. Hudson, Univ. Coll.; J. B. Hunter, Cambridge Univ. and Univ. Coll.; I. B. Jose, London; N. J. Judah, Edinburgh Univ.; G. L. Keynes, Cambridge Univ. and St. Bart.'s; J. Le M. Kneebone, London; E. A. Linell, Manchester Univ.; S. D. Lodge, Leeds Univ.; J. Love, Middlesex; W. M. H. McCullagh, Queen's Univ. and Middlesex; A. C. Maconie, St. Bart.'s; N. S. Macpherson, St. Thomas's; W. C. B. Meyer, Edinburgh Univ. and Univ. Coll.; P. J. Moir, Glasgow Univ. and London; O. G. Morgan, Guy's; D. F. A. Neilson, St. Thomas's; R. L. Newell, Manchester Univ.; H. G. Oliver, London; L. F. O'Shaughnessy, Durham Univ.; S. T. Parker, Otago Univ. and Middlesex; Eleanor Joyce Partridge, Lond. Sch. Med. for Women; D. H. Patey, Middlesex; C. V. Patrick, St. Thomas's; P. P. Pughe, Univ. Coll.; F. H. Scotson, Manchester Univ.; S. C. Shanks, Glasgow Univ.; E. S. S. Smalpage, Sydney Univ.; J. F. H. Stallman, Guy's; C. Sturton, Cambridge Univ.; C. H. Terry, St. Bart.'s; C. P. Thomas, Cardiff and Westminster; J. W. T. Thomas, Middlesex; A. H. C. Visick, St. Bart.'s; E. Watson-Williams, Cambridge and Bristol Univs. and Middlesex; H. P. W. White, Edinburgh Univ.; H. A. B. Whitelocke, Middlesex; O. H. Williams, Edinburgh and Liverpool Univs.; A. D. Wright, St. Mary's; and H. B. Yates, St. George's.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the Royal College of Physicians was held on May 4th, Sir Robert Philip (President) in the chair. Dr. Andrew Graham Ritchie was elected a Fellow of the College. Dr. George Sandison Brock, M.B.E., Dr. Chung Yik Wang, and Dr. Thomas Frederick Corkill were elected Members of the College. The Lister Fellowship for Original Research was awarded to Dr. G. W. Marshall Findlay.

Parkin Prize.—This prize of £100 is open to competitors of all nations. The subject of the essay for the present period is "On the Curative Effects of Carbonic Acid Gas or Other Forms of Carbon in Cholera, for Different Forms of Fever and Other Diseases." Essays intended for competition, which must be written in the English language, to be received by the secretary not later than Dec. 31st, 1920.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on May 19th the following candidates, having passed the requisite examinations, were admitted Fellows:—

John Stanley Arkle, Cyril Victor Baigent, Harry Banks, Max Richard Boe, August Lyle Buchanan, Charles Henry Corbett, Pares Chandra Datta, John Newbury Fraser Ferguson, Frank Cyril Greig, Edward Wilson Hall, Arthur Dodsworth Haydon, Ashley Ernest Herman, William Henry Johnston, Gideon Johannes Joubert, Charles Hardiman Laver, Arthur Poole Lawrence, Crichton Raoul Merrillees, Ronald Kelburne Merson, Ryder Percival Nash, John Millie Pringle, Frank Hubert Robbins, Harold Farley Seymour, Frederick Montgomery Spencer, Robert Stevenson, Claude Bartley Tudehope, Cuthbert Arnold Verge, Rankin Greig Walker, Andrew Walbrugh, Norval James Watt, Harold Williamson, and Gordon Stewart Woodman.

The following candidates, having passed the requisite examinations, had the Higher Dental Diploma conferred upon them:—

Douglas Llewellyn George Radford, Charles Henry Kemball, and James Dalgleish Hamilton Jamieson.

At the same meeting the Bathgate memorial prize, consisting of bronze medal and set of books, was, after a com-

petitive examination in materia medica, awarded to Mr. Herbert John Appleyard. The Ivison Macadam memorial prize in chemistry, consisting of bronze medal and set of books, was awarded, after competitive examination, to Mr. Leonard Alexander Watson.

UNIVERSITY OF MANCHESTER.—At the recent meeting of the University Court it was stated that the number of students attending the University is 2778, nearly double that of 1914–15. In the Faculty of Medicine alone the number has risen from 270 in 1913 to 766 at the present time. There are now 574 women students in the University. The University appeal launched in December makes progress, but the half-way point towards the £500,000 asked for has not yet been reached; the amount at present promised touches £200,000. The Vice-Chancellor, Sir Henry Miers, said recently—

"Some people may have thought that the University has been doing in some respects an undignified thing in having a startling press campaign. I am inclined to think there is no other way nowadays of approaching the main mass of the population in a great industrial district like this but through the press. At any rate, one effect of this campaign is that the University and its needs are certainly well known throughout the whole district, and there is no excuse for anyone to say they have never heard of the existence of the University or of the difficulty under which it carries on its work."

THE VOLUNTARY HOSPITAL AND THE REMUNERATION OF THE STAFF.—A conference of representatives of the honorary visiting staffs of some of the larger voluntary hospitals of the Midlands was held at the Leicester Royal Infirmary on May 18th. The hospitals represented included those of Birmingham, Burton, Coventry, Derby, Leicester, Loughborough, Manchester, Northampton, Nottingham, Salford, Sheffield, Stoke-on-Trent, West Bromwich, and Wolverhampton. Thirty-six representatives were present. The chair was taken by Sir Richard Luce, of Derby. The questions brought up for discussion were:—

1. The desirability of payment for the visiting staff for work done at their hospital on behalf of the Ministry of Pensions, the Ministry of Health, or the local medical health authorities, and, if so, at what rates.
2. Whether the time has come to ask for payment for the visiting staff for all work done by them at the hospitals and, *if so*, whether this should take the form of an honorarium, a salary, or a percentage of the expenses of the hospital.

If not, what alteration in the existing management or financial arrangements of the hospitals would create the need for such a request.

After full discussion the following resolutions were passed:—

1. That payment for the visiting staffs was desirable for work done at their hospitals on behalf of the Ministry of Pensions, the Ministry of Health, or for the local medical health authorities.

The question of methods and rates of pay was referred to a committee for detailed consideration and report.

2. That the time has not come for visiting staffs to ask for payment for all work done by them at the hospitals.

It was felt, however, that the need for such a request would arise if the State or local authorities should assume control over the hospitals or if the income of the hospitals ceased to be derived from voluntary contributions. No definite organisation was formed for future meetings, but the chairman and secretary to the meeting were instructed to reassemble the conference at their discretion.

HEALTH EXHIBITION IN BELFAST.—A health exhibition, collected together by the Women's National Health Association of Ireland (of which the Marchioness of Aberdeen was the foundress), was opened in the Ulster Hall, Belfast, on May 17th, by the Countess of Shaftesbury, under the auspices of the Public Health Committee of the Belfast City Council and the Council of Social Welfare, and has since been largely attended. In connexion with it an address on "Housing" was given on the evening of May 17th by Sir Crawford McCullagh (chairman of the Belfast Housing Committee), which showed that the whole difficulty arose from the high price of materials and from the rising wages of workers. On the next evening, May 18th, an address was given by Sir John Byers on Mother and Child, in which special emphasis was laid on the importance of providing more maternity beds available for serious obstetric cases and for those living in crowded dwellings, and on the evil of separating mother and child, as exemplified in the high illegitimate infantile mortality rate. On May 19th the lecture on Tuberculosis was given by Professor J. A. Lindsay, in which special attention was drawn to better civilisation as a factor in preventing tuberculosis, and to the awful condition of the national schools in Belfast, some of which, he said, would be a disgrace to the Soudan. Mr. R. J. Johnstone, on May 20th, lectured on The State and Public Health. While strongly approving of the State taking more to do with the public health, he expressed himself as being totally opposed to a State medical service. On May 21st Mr. D. Houston, of the Irish Agricultural Society, lectured on Milk, and brought out the importance of healthy cows and of clean dairying.

TUBERCULOSIS SOCIETY: A REPRESENTATIVE CONGRESS.—Under the auspices of this society a two-day Congress was held in Leeds on May 13th and 14th, with additional meetings at Bradford and Harrogate on the 12th and 15th. The Congress was representative of tuberculosis workers from all parts of the country, including Ireland. The preliminary meetings in Bradford were addressed by Dr. Nathan Raw, M.P., who outlined the proposals of the Government with regard to industrial settlements; Mr. H. Thornton Pullan (chairman of the Bradford Health Committee); Dr. H. Vallow (tuberculosis officer, Bradford); Dr. H. de Carle Woodcock (the President); and others. The chief substance of these meetings was devoted to the need for better housing and the necessity of a clean milk-supply. On Saturday, May 15th, delegates visited Harrogate, where they were entertained to luncheon, and visited the baths.

ASSOCIATION OF PHYSICIANS OF GREAT BRITAIN AND IRELAND.—The thirteenth annual meeting of this association was held at the University of Manchester on May 21st and 22nd. Dr. Judson Bury was in the chair, and about 100 members attended. At the business meeting Dr. Judson Bury was selected as President. The honorary treasurer (Sir William Hale White) and the honorary secretary (Dr. H. Morley Fletcher) were re-elected, the latter having recently succeeded Sir Wilmot Herringham, who has retired from office to the great regret of the members. The Executive Committee consists of these officers and of Drs. Charles, T. R. Elliott, W. Pasteur, and Professors Arthur J. Hall and J. Russell, representing England, Dr. Francis Boyd, and Professors Ashley Mackintosh and R. Stockman to represent Scotland, with Drs. J. E. MacIlwaine, Gilman Moorhead, and G. Peacocke to represent Ireland. Birmingham was selected as the place of meeting for next year. The meeting was in every respect a successful one, but the rules of the Association preclude any report of the proceedings. Special thanks were accorded to the local honorary secretary, Dr. A. Ramsbottom, who had made excellent arrangements for the comfort of the visiting members.

THE MEDICAL DEFENCE UNION: INCREASE OF SUBSCRIPTION.—At a special general meeting of the Union held at the Medical Society of London, 11, Chandos-street, London, W., on May 20th, the following resolutions were carried:—

That on and after the 1st January, 1921, the annual subscription to the Medical Defence Union shall be £1, which payment shall provide each member with indemnity against damages and costs awarded against him, to the extent of £2500, in any case which is undertaken on behalf of the member by the Medical Defence Union, and that a member elected on or after the 1st July in any year shall pay half the current subscription for that year.

That the fee for life membership shall remain at £25, which payment shall include all the benefits of the indemnity, on and after the 1st January, 1921. Life members who have compounded for a less sum and are still in practice shall be asked to pay a subscription of 5s. per annum to cover the indemnity.

Newly registered medical practitioners will be admitted to membership on and after Jan. 1st, 1921, without payment of an entrance fee, provided that they join the Union within one year of the date of their registration.

VITAL STATISTICS FOR CALCUTTA.—The total number of deaths registered in Calcutta during the week ending April 10th was 716, against 707 and 667 in the two preceding weeks, and lower than the corresponding week of last year by 315. These are the figures given by Dr. H. M. Crake, health officer. There were 64 deaths from cholera, against 48 and 47 in the two preceding weeks; the number is lower than the average of the past quinquennium by 57. There were 13 deaths from plague, against 4 and 3 in the two preceding weeks, the average of the past quinquennium being 19. There were 80 deaths from small-pox during the week, against 114 in the previous week. There were 30 deaths from influenza, against 36 in the previous week. The mortality from fevers and bowel complaints amounted to 55 and 70 respectively, against 70 and 71 in the preceding week. The general death-rate of the week was 41·6 per 1000 per annum, against *37·4, the mean of the last five years. There were 45 imported deaths. Excluding these, the death-rate of the city was 38·1. There were 160 deaths from respiratory diseases, against 150 in the previous week.

GENERAL REGULATION IN AUSTRIA OF MEDICAL FEES.—One of the chief aims of the medical organisation in Austria has been achieved within the last few weeks in the approval of the new schedule of medical fees by the medical council elected for this purpose. The system now in force provides for the differences of the cost of living in towns or in the country, as the value of money is quite different according to the place in which the doctor resides. The scale will rise from a minimum of five times the sum charged before the war. Thus the minimum fee payable for a call at the patient's house in Vienna will be 30 kronen in daytime and 100 at night. This sounds much, but is really very little, as its buying value is not more than

about 1s. and 3s. respectively. Of course, this minimum fee is to be charged only to the poorer classes of patients, the wealthy being expected to pay more. Still, the impoverishment of the people has attained such a degree that the profession will have much difficulty in obtaining fees corresponding to the general rise of food prices. One feature of the scale recommended for general adoption is the relation between the minimum fees of the general practitioner, the better qualified man (privat-docent or specialist), and the professor as 1 : 2 : 4. These figures are also meant to be a minimum. Every medical or surgical interference besides a simple examination—i.e., a hypodermic injection, the washing out of an organ, the application of a bandage, or the instillation of drops—is to be charged for extra.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on May 20th, with Sir Francis H. Champneys in the chair. Two midwives were struck off the roll, the following charges amongst others having been brought forward:—

1. Being in attendance at a confinement and the child suffering from dangerous feebleness the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5); the child being in the condition aforesaid, she neglected to hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might immediately be forwarded to a medical practitioner or to an approved institution, as required by Rule E. 20; the death of the child having occurred before the attendance of a registered medical practitioner, the midwife neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (b), and she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14. 2. The midwife did not enter her records of the pulse and temperature of her patients in a notebook or on a chart carefully preserved, as required by Rule E. 14. A child suffering from serious skin eruption during her attendance the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5), and the patient suffering from a condition supposed to be infectious, the midwife neglected to send any notification to the local supervising authority of the fact, or that she was herself liable to be a source of infection, as required by Rules E. 6, E. 22 (1) (e), and E. 23 Form (e).

Parliamentary Intelligence.

HOUSE OF LORDS.

National Health Insurance Bill.

ON Monday, May 17th, on the motion of Viscount ASTOR, the National Health Insurance Bill was read a second time. On May 18th, on the motion that the House do go into Committee on the National Health Insurance Bill, the Marquess of SALISBURY complained that the Bill, which contained 21 clauses, most of their legislation by reference, had been rushed through the Standing Committee at one sitting and passed the Report and Third Reading stages in the House of Commons at an all-night sitting. Was it possible to treat Parliament with greater contempt? He moved the adjournment of the debate in order to hear what explanation the Government had to offer.—Viscount ASTOR said the Bill was most urgent. Over 2,000,000 cards had to be filled in, registered, and distributed among the Approved Societies, and unless that were done immediately it was impossible for those societies to be ready by July 1st, when the next half-yearly contributions were due. In addition to that, if the Bill were not passed before Whitsuntide a serious additional burden would be laid upon the Treasury. —The Marquess of SALISBURY, in withdrawing his motion, said he hoped that the proceedings that afternoon would convince the Government that they were no longer to assume that the House of Lords would always be ready to pass Bills sent up from the Commons at the very last moment.—The Bill passed through Committee, was read a third time, and passed. The Bill received the Royal Assent on Thursday, May 20th.

HOUSE OF COMMONS.

MONDAY, MAY 17TH.

Medical Services in the Navy.

The House went into Committee of Supply on the Navy Estimates for 1920–21, Sir E. CORNWALL in the chair. On a vote of £677,300 for the expense of medical services, including the cost of medical establishments at home and abroad,

Sir D. MACLEAN said there could be no doubt at all that the Committee welcomed any further efficiency, and, indeed, any reasonable addition to the cost of the medical services of the navy; but he would point out that, while the numbers to-day were identical with those in 1912–13, the cost had risen from £279,000 in the latter year to £677,000 in this Vote. He knew that the prices of medical stores had soared almost beyond the range of percentages, but on the question of numbers he did wish to elicit some information. As far as he could see on the medical establishments at home and abroad there had been this year no reduction at all in numbers. While under Vote A the number of officers and men for the Royal Navy had fallen from 225,000 to 126,000, on the medical establishment there had been no corresponding reduction. Why was it that they still required 3 surgeon rear-admirals, 8 surgeon-captains, 17 surgeon-commanders, and 43 surgeon-lieutenants? He noticed that there was some reduction in the nursing staff, and that the cost there had gone down from £34,300 last year to £30,700 this year. But there was a greater charge for the rear-admirals, whose numbers were diminished, of £50. There was a slight increase in the charge for surgeon-captains, while that for surgeon-commanders had risen from £16,900 to £18,400.

Sir T. BRAMSDON complained that certain unqualified ratings were actually placed in charge of hospital wards in order to allow leave to members of the staff. He also asked if the Medical Director-General had yet paid a visit to the Royal Naval Hospital at Haslar to see what the situation was there.

Lieutenant-Colonel KENWORTHY said in 1919–20 they voted a sum of £9500 on account of the expenses of two hospital ships; this year the sum was £40,270. He suggested that these hospital ships might well be employed in assisting the army to bring home sick British soldiers from Egypt. If they were employed on any other service which prevented them from doing that, and which was not a purely British naval service, the Committee ought to be informed.

Sir J. CRAIG (Financial Secretary to the Admiralty) said they were getting back—slowly in some cases, more rapidly in others—to what they hoped would be a satisfactory state of finance, but it could not be done suddenly. They had still on hire at the moment two hospital ships, which they were going to replace, probably by purchase. Where their services were required, there those ships should be in accordance with naval policy. In reply to Sir D. Maclean, he might say that the personnel afloat was paid for out of Vote 1 and not out of Vote 3, but he admitted that something might be done to make the estimate a little clearer in this respect, and he would promise to meet his right honourable friend's wishes with regard to that. In reply to Sir T. Bramsdon, if a visit by the Director-General to examine into the affairs at Haslar Hospital was necessary it would be arranged as soon as possible.

Viscount CURZON said that before the war the position of hospital ships in the navy was not very satisfactory, and he hoped that a definite policy would be laid down with regard to them. He had noticed that in certain naval depôts and naval establishments the medical staff had certain periods when they had very little to do. He commended the suggestion to the First Lord that where possible naval medical officers should be allowed to attend on the wives and children of the men.

Sir D. MACLEAN said that the Vote as it stood was really incomprehensible, and he suggested that it should be withdrawn.

Sir J. CRAIG: No. Sir J. Craig said he would have the matter set right in the White Paper which he proposed to have prepared before the Report stage.

Dr. M'DONALD much regretted to find opposition to grant the necessary amount towards the expenditure on the medical services of the navy. Very frequently they had found in the past that the medical services in this country were utilised to a very large extent for the benefit of the nation more than for the benefit of the medical profession. He was sorry to hear the suggestion that naval medical officers should be asked to attend the families and children of the members of the Service. It had been suggested that many medical men were very often found with insufficient work. He had known some officers in the navy who had a considerable amount of time at their disposal as well as medical men. As to the increase of cost, many honourable Members did not realise the enormous increase in the cost of medicine and surgical appliances.

Mr. ACLAND said when he was Financial Secretary to the War Office he found there was no department in which it was more difficult to reduce expenses than the medical and nursing department. The Vote was agreed to.

TUESDAY, MAY 18TH.

Effect of the War on European Populations.

Mr. ALLEN PARKINSON asked the Under Secretary for Foreign Affairs whether he could issue a White Paper showing the best available information as to the effect of the war upon the populations of the various European countries, particularly the number of war casualties and other deaths and the decline in the number of births.—Mr. HARMSWORTH replied: I understand from the authorities in this country who study these matters that there is not yet sufficient information available to render it possible to contemplate the issue of a White Paper on the subject. A series of publications have, I believe, been prepared by a Danish

writer, Mr. C. Doring, and copies have been obtained by the Royal Statistical Society, who would, doubtless, be pleased to permit the honourable Member to consult them on application.

Exports of Morphia.

Sir R. HORNE (President of the Board of Trade) circulated the following statement of the recorded exports of morphia, which, he regretted, did not include exports through the post, particulars of which are not available:—

Statement showing the Quantity and Value of "Morphia and Morphia Salts," the Manufacture of the United Kingdom, Exported from the United Kingdom to Each Country of Destination During the Year Ended Dec. 31st, 1919 (Exclusive of Exports by Post).

Countries of destination.	Quantity, ounces.	Value, £.	Countries of destination.	Quantity, ounces.	Value, £.
Foreign Countries.			San Salvador..	19	23
Russia	4,745	6,077	Panama	30	39
Sweden	1,192	1,434	Venezuela ...	193	170
Norway	176	175	Peru...	4	6
Denmark* ...	484	794	Chile	1,007	1,583
Germany ...	384	319	Brazil	2,286	3,117
Netherlands...	460	403	Argentine Republic ...	3,823	5,329
Belgium... ...	15,088	14,587			
France	140,873	155,617	Total... ...	302,733	314,948
Switzerland...	2,784	3,161			
Portugal ...	206	268	*British Possessions.*		
Spain	222	411	Egypt	40	56
Italy...	508	699	Union of South Africa	173	167
Austria-Hungary ...	144	131	British India..	530	753
Greece	15	17	Hong-Kong ...	61	67
Persia	7	14	Australia ...	897	874
Siam	4	12	New Zealand..	35	40
China†	164	322	Canada	18,501	19,956
United States of America...	121,474	114,587			
Cuba	6,025	5,196	Total	20,237	21,913
Mexico	416	457			
Total to Foreign Countries and British Possessions				322,970	336,861

* Including Faroe Islands.
† Exclusive of Hong-Kong, Macao, and leased territories.

Improved Conditions of School Children.

Mr. HURD asked the President of the Board of Trade if he would cause to be collated and issued at the earliest possible moment for the information of the public the evidence upon which he based his statement that the children in public schools were better fed and better clothed than in the years before the war; that there were fewer free meals needed for badly nourished children than ever before; and that in these respects, as in that of unemployment, a marked improvement had taken place in the general condition of the wage-earning community.—Sir R. HORNE replied: As regards the feeding of school children, the most recent report of the chief medical officer of the Board of Education published in 1919 gives on p. 175 a table which shows that for the year 1918-19 the number of school children fed by local education authorities under the provisions of the Education (Provision of Meals) Act, 1906, was 52,490, as compared with 156,531 in 1913-14 and 358,306 in 1912-13. As regards improvement in the clothing of school children, there is no published information for the country as a whole, but I would refer to the statement made by the school medical officer for London on p. 13 of the report to which I have referred, in which he says that in 1918 the number of children found insufficiently clad was less than half the number discovered in 1913. I understand that the general impression gained by the inspectors of the Board of Education has been that a similar improvement was to be found in other parts of the country. As to unemployment there is less at the present time than in an average pre-war year. The percentage of trade-union members reported as unemployed in January, February, and March, 1920, were 2·9 per cent., 1·6 per cent., and 1·1 per cent. respectively. In 1919 the mean annual trade-union percentage of unemployed was 2·4 per cent., whilst during the last 40 years (excluding the war period) the mean annual percentage has only once fallen as low as 2 per cent., and on only four other occasions was it lower than 2·5 per cent.—Mr. HURD: Will the right honourable gentleman say when we can have information for later years?—Sir R. HORNE: I have given the latest figures with regard to unemployment. With regard to the feeding of school children I have not the exact figures, but I am informed that what the school inspectors have to say on the subject bears out what is said in the report of 1918.

WEDNESDAY, MAY 19TH.

Opium Cultivation in India.

Mr. GILBERT asked the Secretary for India if he would state the acreage under opium cultivation in India for each year from 1914 to 1919, the amount and value of opium produced in and exported from India in each year from 1914 to 1919, which were the countries this exported opium was consigned to, and the amount and volume of opium consigned to each country, respectively.—Mr. MONTAGU circulated the following statements (A and B):—

(A) *Statement showing the Area under Poppy (in Acres) and the Outturn therefrom (in Maunds of 82⅔ lb.) in British India, 1913-14 to 1916-17.*

Year.	Area under poppy (acres).	Outturn in Maunds (1 Maund = 82⅔ lb.).
1913-14	144,561	24,292
1914-15	164,911	28,293
1915-16	167,155	27,001
1916-17	204,186	32,124

(B) *Statement showing the Quantity (in Chests), and Value (in Rupees) of Opium Exported from India, 1913-14 to 1918-19.*

Countries of final destination.	Quantity (in Chests).						Value (in Rupees).					
	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19
Exports on Private Account.												
United Kingdom	115	498	199	—	—	—	2.76.650	8.72.225	3.61.500	—	—	—
Ceylon	10£	80	65	80	60	70	2.37.675	1.91.150	1.11.350	2.27.575	1.95.350	2.47.080
Straits Settlements...	1,537	755	605	239	385	152	33.97.505	12.08.575	10.17.250	5.91.025	12.45.335	4.98.360
Hong-Kong	3,821	1,000	734	450	450	545	1.52.61.387	16.60.685	11.87.330	7.24.175	11.66.575	17.59.470
China (excluding Hong-Kong and Macao)	90	—	—	—	—	—	4.17.500	—	—	—	—	—
Macao	150	—	—	50	—	—	2.74.425	—	—	85.750	—	—
Japan	799	900	1,080	963	971	1,936	17.98.700	15.09.875	18.08.250	23.83.070	29.39.360	64.49.355
Formosa	—	—	—	200	—	—	—	—	—	4.32.400	—	—
Indo-China	875	2,690	2,035	3,440	3,050	3,440	19.42.525	43.71.373	33.50.650	81.90.395	94.08.655	1.14.90.975
Java	3,265	2,650	1,835	1,965	1,800	2,400	70.82.975	42.33.775	31.20.800	51.29.650	45.00.000	60.00.000
Siam	1,130	2,000	1,700	1,200	1,650	1,750	24.60.450	30.64.925	28.37.450	28.67.700	45.01.450	43.74.990
British Borneo ...	—	—	—	—	20	130	—	—	—	—	50.000	3.25.005
Mauritius and Dependencies...	19	23	65	120	15	42	50.670	43.275	1.09.545	3.25.195	48.450	1.38.315
Mexico	—	245	460	—	—	—	—	4.52.775	7.79.575	—	—	—
Other countries...	—	15	8	3	7	2	—	25.950	18.140	8.245	22.170	7.200
Total	11,906	10,856	8,786	8,710	8,408	10,467	3.42.00.462	1.76.34.585	1.47.01.840	2.09.65.180	2.40.77.345	3.12.90.750
*Exports on Government Account.**												
United Kingdom	—	—	—	—	3,051	2,400	—	—	—	—	25.11.147	20.11.230
Hong-Kong, Straits Settlements, &c.†	—	—	—	—	5,194	4,411	—	—	—	—	1.03.88.000	87.13.995
Total	—	—	—	—	8,245	6,811	—	—	—	—	1.28.99.147	1.07.25.225
Grand total ...	—	—	—	—	16,653	17,278	—	—	—	—	3.69.76.492	4.20.15.975

* Exports of opium on Government Account were not separately recorded previous to the year 1917-18.
† Shipped direct to the Governments of Hong-Kong, the Straits Settlements, and other East Indian Governments.

Increases of Pay in Indian Medical Service.

Mr. MONTAGU (Secretary for India) informed Mr. Lunn that the approximate cost per annum of the recent increases of pay sanctioned for the Indian Medical Service was £250,000.

Medical Officers in Southern and Northern Nigeria.

Earl WINTERTON asked the Under Secretary for the Colonies if he would state what steps were being taken to deal with the serious shortage of medical officers in the service of the Southern and Northern Nigerian governors.—Colonel WILSON replied: Steps are being taken to revise the salaries of officers of the West African Medical Staff, and when the new salaries are settled they will be brought to the notice of possible candidates, but there is a great dearth of medical men at the present time.—Earl WINTERTON: Can my honourable and gallant friend inform the House what steps are being taken at the present time to deal with the situation out there? Is he aware that officials are dying for want of medical care?—Colonel WILSON: I am informed that the position is well known to the Colonial Office. The new scale of salaries will be issued very shortly now.

Dental Mechanics.

Sir THOMAS BRAMSDON asked the Financial Secretary to the War Office whether he was aware that the naval authorities employed unenlisted dental mechanics at trade rates; and was he prepared to employ discharged soldiers, dental mechanics, at trade rates in order to obviate the necessity of these men drawing unemployment pay, and thereby to do for them what the Government was urging private firms to do for discharged soldiers.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: The military commands at home have been authorised to employ civilian dental mechanics at local rates where the services of such are necessary and where no enlisted dental mechanics of the Royal Army Medical Corps are available.

Sir THOMAS BRAMSDON asked the Financial Secretary to the War Office whether, in view of the number of unemployed discharged soldiers who were dental mechanics, it was necessary to inaugurate a costly scheme of training for this purpose.—Sir A. WILLIAMSON replied: In spite of special efforts which have been made to recruit dental mechanics, the numbers that have come forward are inadequate to meet the needs of the army. The course of training for recruits which has been instituted is carried out at the dental workshops already in existence, and there is no intention of inaugurating a costly scheme.

Compensation for Poor-law Officers.

Dr. ADDISON informed Mr. BRIANT that the Bill which he proposed to introduce for the reform of the Poor-law would contain provisions dealing with the compensation of Poor-law officers.

Medical Boards at Manchester.

Major NALL asked the Minister of Pensions whether he was aware of the increasing delays in arranging medical boards arising from the regional headquarters, Manchester, and that in consequence a large number of distressing cases were accumulating; and what steps he was taking to adjust the inconvenience and hardship thereby caused.—Major TRYON replied: My right honourable friend is not aware that there is general delay such as is referred to in the first part of the question; but if the honourable Member can supply instances of delay in particular cases I shall be glad to make inquiries. As regards the latter part of the question where the circumstances are such that a medical examination cannot be arranged in time to prevent an interruption in the award, arrangements are made to continue for a short period the expiring pension.

THURSDAY, MAY 20TH.

Venereal Disease Statistics.

Captain ELLIOT asked the Secretary for War whether he could give the case-rate per 1000 of venereal disease amongst the British army in the United Kingdom, France and Flanders, and Germany (occupied territory) in the years 1918, 1919, and the first quarter of 1920.—Mr. CHURCHILL replied: The approximate rates per 1000 of admissions for venereal disease are as follows:—

	Ratio per 1000 per annum.		Ratio per 1000 first quarter.
	1918.	1919.	1920.
United Kingdom	43	59	14·8
France	32	67	40·5
Army of the Rhine	—	46	42·3

The ratios for 1919 and 1920 are to a large extent fallacious owing to rapid demobilisation. There has been a rise in the incidence of venereal disease amongst the troops in France and Germany, but I am glad to say that the latest information shows some improvement.

Soldiers' Artificial Limbs.

Major COHEN asked the Minister of Pensions if he would state how many limbless soldiers had already been provided with their second artificial limb; and how many such soldiers were still waiting for the said limb; and whether it was his intention to provide boots free of charge in perpetuity to fit the artificial limbs of legless soldiers.—Major TRYON replied: It was not found possible to commence the supply of duplicate artificial limbs until last October, when the supply of first limbs had been practically completed, but on April 16th 5213 limbless soldiers had been supplied with duplicate limbs. There are in all about 32,000 men not provided with duplicate limbs, but not the whole of this number can be stated to be "waiting." The large majority of men are in employment, and will only attend fitting centres at a time convenient to themselves. Moreover, in a large majority of short stump-arm cases the men prefer not to wear an artificial limb; and there are cases of recent amputation not yet ready for fitting. Unless there is special urgency, cases are dealt with in rotation according to the date of supply of the first limb. As the artificial legs supplied by the Ministry are so made that an ordinary boot can comfortably be worn, I am not clear that there is any reason why boots should be supplied at the public cost.

Pensioners and Institutional Treatment.

Mr. KILEY asked the Minister of Pensions whether, in the case of ex-soldiers suffering from nerve strain who were considered to require institutional treatment, any part of their pension went to the institution providing the treatment; if so, how much; and, if the patient refused treatment, would any portion of the pension be forfeited.—Major TRYON replied: The answer to the first part of the question is in the negative. The charges made by the institution are defrayed by the Ministry. I may, however, explain that a discharged soldier under institutional treatment does not draw pension, but is maintained free of charge and receives allowances which are generally at the rate of 21*s.* per week with additions for rank and dependents. As regards the second part of the question, pension may be reduced by one-half or less if treatment certified to be necessary in the man's interests is unreasonably refused. Every case is considered on its individual merits.

Government Publications on the Use of Alcohol.

Captain BOWYER asked Mr. Chancellor of the Exchequer whether his attention had been called to an official-paid circular issued by His Majesty's Stationery Office, with an order form attached, relating to a publication entitled Alcohol: its Action on the Human Organism, issued by the Central Control Board (Liquor Traffic) under the chairmanship of Lord d'Abernon; why this publication was advertised at the public expense; whether he could point to any other official publications with regard to which similar methods of advertisement had been adopted; and would he state the number of these circulars that had been sent out.—Mr. BALDWIN (Secretary to the Treasury) replied: My attention has been called to the circular to which my honourable and gallant friend refers. The publication in question is advertised at the public expense because it is a Government publication; and the method of advertisement used in this and other similar instances to which I could refer has been adopted as being in certain cases the most effective means of calling public attention to official publications. In this case about 40,000 circulars were sent out to all British medical practitioners, the total cost for the printing, address, and dispatch of the circulars amounting to about £60. The receipts already exceed this sum.

THE LATE DR. S. R. SAVAGE, OF PRETORIA.—Dr. Savage died at Pretoria on April 27th. Born at Welteroreden, Rondebosch, a suburb of Cape Town, the deceased was educated at the Diocesan College, Rondebosch, at the Cape University, where he took his degree of arts, and subsequently qualified M.B., C.M. Edinburgh in 1886. On returning to South Africa Dr. Savage was for a time principal medical officer at Maseru, Basutoland, and later went into partnership with Dr. Clarke, of Bloemfontein. At the conclusion of the Boer War Dr. Savage went to Pretoria at Lord Kitchener's special request. Later he was appointed railway medical officer, and held this post until his death, in addition to a successful general practice at Pretoria, where he was accounted an obstetrician of special skill and merit. Dr. Savage was senior visiting physician to Pretoria Hospital and a member of the Asylum Board and of the Victoria Cottage Hospital Committee. At one time he was president of the Pretoria Branch of the British Medical Association. His publications include articles on Intra-orbital Periostitis and on Leprosy in British Basutoland in the *Cape Medical Journal* in 1893 and 1895 respectively. Dr. Savage gave his services generously to the community. He was a member of the first town board of Pretoria, subsequently a town councillor, and in 1908 he was mayor of the capital. He was one of the earliest presidents of the Victoria Cross Lodge of the Order of the Sons of England and a member of the Transvaal Lodge of Freemasons. Dr. Savage married a daughter of the late Bishop Bousfield and is survived by his widow and a large family.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DENT, PATRICIA, M.B., B.S. Lond., has been appointed Assistant Medical Officer for Maternity and Child Welfare and Assistant to the School Medical Officer for the County Borough of Wolverhampton.

RIGBY, R. A. C., L.R.C.P. & S. Edin., Honorary Medical Officer in charge of the X ray and Electro-Therapeutic Department at the General Hospital, Nottingham.

RYLAND, A., F.R.C.S. Edin., Oto-Laryngologist to the Whipps Cross Infirmary, Leytonstone.

Certifying Surgeons under the Factory and Workshop Acts: DONALD, D. A., M.B., Ch.B. Edin. (North Berwick); CHRISTIE, J. C., M.B., Ch.B. Glasg. (Tarbert); GARDINER, D. G., M.B., Ch.B. Glasg. (Stonehaven); WARD-SMITH, W., M.D. Edin. (Shipley).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Lecturer in Anatomy. £400.
Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.
Bath, Royal Mineral Water Hospital.—Res. M.O. £250.
Bath, Winsley Sanatorium.—Sen. Res. M.O. £500.
Bermondsey Infirmary, Lower-road, Rotherhithe, S.E.—Sec. Asst. M.O. £400.
Bethnal Green Infirmary, Cambridge-road, Bethnal Green, E.—Asst. M.O's. £325. Jun. M.O. £300.
Bethlem Royal Hospital, Lambeth-road, S.E.—Senior Asst. P. £600.
Birmingham Union, Dudley-road Hospital.—Res. Asst. M.O. £365.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150,
Bradford Children's Hospital.—H.S. £200.
Brighton, Hove and Preston Dispensary.—Res. M.O. £200.
Bristol General Hospital.—Cas. H.S. £175.
Brookwood, Surrey County Mental Hospital.—Jun. M.O. £400.
Burnley Union.—Res. M.O. £400.
Bury and District Joint Hospital Board.—Res. Asst. Med. Supt. £450.
Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.
Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Res. M.O. £150.
Carlisle, Cumberland Infirmary.—H.P. £250.
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S.
Chester County Asylum.—Third Asst. M.O. £350.
Chesterfield and North Derbyshire Royal Hospital.—Hon. P.
City of London Maternity Hospital, City-road, E.C.—Res. M.O. £100.
Coventry Education Committee.—Asst. Sch. M.O. £500.
Dorset County Asylum, near Dorchester.—Sec. Asst. M.O. £380.
Dumfries, Crichton Royal.—Asst. P. £300 to £400.
Durham County Council, Maternity and Child Welfare.—Female Asst. Welfare M.O. £500.
East Riding Education Authority.—Female Asst. Sch. M.O. £500.
Enham Village Centre for Disabled Ex-Service Men, near Andover, Hants.—Asst. Med. Direct. £500.
Evelina Hospital for Children, Southwark, S.E.—Hon. Clin. Asstes.
Great Northern Central Hospital, Holloway-road, London, N.—Res. M.O. £250.
Halifax Royal Infirmary.—H.S. £200.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., Cas. S.O., Cas. M.O. £150 each.
Hospital for Sick Children, Great Ormond-street, W.C.—P.
Huddersfield Royal Infirmary.—Sen. H.S. £250.
Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150. Asst. V.D. Officer and Cas. £250.
Ipswich County Borough.—Asst. M.O.H. £500.
Italian Hospital.—H.S. £150.
Johannesburg, South African School of Mines, &c.—Professorships of Med., Surg., and Obstet. £750 each. Professor of Pharm. £1000.
Kirkburton, Storthes Hall Asylum, near Huddersfield.—Asst. M.O. £400.
Lanark County.—Asst. M.O.H. and Asst. Tuberc. O. £550.
Lancashire County Council.—Two Asst. Disp. Tuberc. O.'s. £700.
Leeds Public Dispensary.—Res. M.O. £200.
Lindsey County Council.—Female Asst. M.O. £550. Also Asst. Tuberc. O. and Asst. Sch. M.O. £550.
Liverpool, David Lewis Northern Hospital.—H.P. £150.
London Lock Hospital and Home, 283, Harrow-road, Paddington, W., and 91, Dean-street, Soho, W.—Hon. Dent. S. 25 guineas.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.
Manchester City.—M.O. £450.
Manchester Royal Infirmary.—H.S's.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £200.
Middlesex Hospital.—Asst. S.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350. M.O. X ray Dept. £75. Also Hon. Asst. Ophth. S.
Newcastle-upon-Tyne City and County.—Maternity and Child Welfare M.O. £700.
Newcastle-upon-Tyne, Hospital for Sick Children.—Jun. Res. M.O. £200.
Northallerton, North Riding of Yorkshire County Council.—Chief Clin. Tuberc. O. £700.
Northampton General Hospital.—H.S. and H.P. £200 each.
Nottingham City Asylum.—Second Asst. M.O. £400.
Nottingham Children's Hospital.—Female Res. H.S. £200.
Nottingham General Hospital.—H.P. Also Cas. H.S. £200 each.
Portsmouth Royal Hospital.—H.S.'s. £150.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.S. £100.
Reading, Berkshire Education Committee.—Asst. Med. Inspector of Schools. £500. Sch. Dent. £450.
Reading, Royal Berkshire Hospital.—H.S. £200.
Rhondda Urban District Council.—Dent. S.'s. £500.
Rochdale Infirmary and Dispensary.—Sen. H.S. £200. Jun. H.S. £125.
Rotherham Hospital.—Jun. H.S. £150.
Royal Chest Hospital, City-road, E.C.—M.O. in X ray Dept. 25 gs.
Royal Institute of Public Health, 37, Russell Square, W.C.—Lecturer and Demonstrator of Bacteriology. £500.
Royal Veterinary College, Camden Town.—Chair of Anatomy. £600.
Russian Red Cross, 35, Albemarle-street.—Two M.O.'s. £800.
St. Mary's Hospital, Paddington.—Secretary. £800.
Salford Royal Hospital.—Hon. Dermatologist.
Sheffield City.—Asst. Tuberc. O. £500.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
Shirlett, near Much Wenlock, King Edward Memorial Sanatorium.—Res. Med. Supt. £450.
South Infirmary, Pancras-road, N.W.—Female Asst. Med. Supt. and Asst. M.O. £300.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100. Also Anæsth. 10s. 6s. per attendance.
Staffordshire General Infirmary, Stafford.—H.S. £250.
Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.
Stockport Infirmary.—Jun. Res. M.O. £200.
Swansea County Borough.—Asst. M.O. £500.
Truro, Tehidy Sanatorium.—Res. M.O. £300.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Walsall General Hospital.—Female H.S. and Anæsth. £175.
Wear Hospital, Grove-road, Balham, S.W.—Res. M.O. £200.
West Bromwich and District Hospital.—Res. H.S. £200.
West Ham County Borough.—Asst. School M.O. £450.
Wolverhampton and Staffordshire General Hospital.—H.S. £200. Also Res. M.O. £200.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Garstang, Frome, Uttoxeter, Tooting, and Redditch.

Births, Marriages, and Deaths.

BIRTHS.

BOND.—On May 1st, at Villa Sol, St. Jean-de-Luz, S. France, the wife of Dr. C. Shaw Bond, of a daughter.

DAY.—On May 19th, at St. James's Court, S.W., the wife of Bernard Day, M.D., of a premature son, stillborn.

JEFFREY.—On May 24th, at Glenbank, Jedburgh, the wife of John Jeffrey, M.B., F.R.C.S.E., of a son.

STATHAM.—On May 21st, at a nursing home, the wife of Dr. R. S. S. Statham, O.B.E., of Ormlie, Clifton Down-road, Clifton, Bristol, of a daughter.

DEATHS.

ROBERTS.—On May 20th, at Guy's Hospital, Ernest Roberts, M.B., M.Ch., D.P.H., Lieutenant Colonel, I.M.S. (retired).

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. W. Abbatt, Tarrytown, N.Y.
B.—Dr. A. E. Brindley, Derby; Mr. J. O. Butcher, Lond.; Mr. L. W. Blumenthal, Brooklyn; Messrs. Butterworth and Co., Calcutta; Dr. R. R. S. Bowker, Pontnewydd; Mr. C. F. Bailey, Brighton; Prof. W. B. Bell, Liverpool; British Science Guild, Lond.; Mr. F. J. C. Broome, Harrogate.
C.—Mr. G. Chubb, Lond.; Sir J. Crichton-Browne, Lond.; Prof. E. L. Collis, Cardiff; Dr. D. E. Core, Manchester.
D.—Dr. S. Davies, Lond.; Lt.-Col. A. M. Davies, Lond.; Prof. S. T. Darling, S. Paulo, Brazil; Dr. J. P. Davin, New York; Prof. L. S. Dudgeon, Lond.
F.—Dr. Fraipont, Liége.
H.—Dr. A. K. Henry, Dublin; Mr. W. Hayward, Lond.; Mr. J. T. Henderson, Pietermaritzburg.
I.—Dr. E. C. B. Ibotson, Corris; Ivory Cross, Lond.; Insurance Committee for the County of London; Illuminating Engineering Society, Lond.
J.—Dr. R. Jardine, Glasgow; Capt. G. G. Johnstone, R.A.M.C.(T.F.)
K.—Dr. A. F. S. Kent, Manchester; King's College Hospital Medical School, Sec. of.
L.—Dr. J. H. Lloyde, Bedford; Dr. E. Lowry, Lond.; Sir R. Luce, Derby.
M.—Ministry of Health, Lond.; Dr. O. May, Lond.; Prof. C. J. Martin, Lond.; Dr. W. E. Masters, Secondee, W. Africa; Dr. C. F. Marshall, Lond.; Medical Defence Union, Lond., Sec. of; Mr. J. E. R. McDonagh, Lond.; Dr. A. C. Magian, Manchester.
N.—National Council for Combating Venereal Diseases, Lond.
P.—Panel Committee for the County of London; Mr. H. S. Polak, Lond.; Dr. D. S. Pracy, Atherstone; Capt. A. E. H. Pinch, Lond.
R.—Royal Society, Lond.; Dr. R. P. Rowlands, Lond.; Royal Institution of Great Britain, Lond.; Mr. G. Q. Roberts, Lond.; Royal College of Physicians of Edinburgh; Dr. J. W. Rob, Weybridge.
S.—Sells, Ltd., Lond.; Save the Children Fund, Lond.; Messrs. Siemens Bros. and Co., Lond.; Society for the Relief of Widows and Orphans of Medical Men, Lond.; Société des Sciences Médicales et Biologiques de Montpellier.
T.—Dr. F. E. Tylecote, Manchester; Dr. W. E. Tanner, Lond.
U.—United Press Association of Liverpool.
W.—Dr. H. M. Woodcock, Lond.; Col. Sir Edward Ward, Lond.; World Trade Club, San Francisco; Dr. C. Westman, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, June 3rd.—4.30 P.M., Bakerian Lecture: Sir Ernest Rutherford: The Nuclear Constitution of the Atom.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.

Monday, May 31st.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.
Casual Communications by—
Mr. J. G. Turner, Mr. J. Harborow, Mr. Watson Turner, Mr. Pitman.
Paper:
Mr. Charles A. Clark: Relation of Teeth to the Floor of the Antrum (illustrated by radiographs and lantern slides).
Members of other Sections are invited to attend.

Tuesday, June 1st.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 8.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.
Paper:
Dr. David Forsyth: Psycho-analysis of a Case of Early Paranoid Dementia.

Thursday, June 3rd.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
Short Communications:
Dr. Philip Turner: Traumatic Rupture of the Pedicle of a Sub-peritoneal Fibroid.
Dr. Ford Anderson: A Case of Rupture of the Uterus.
Dr. Fletcher Shaw and Dr. Burrows: Radical Cure of Advanced Carcinoma of the Cervix made possible by the Application of Radium.
Specimen:
Dr. A. W. Bourne: A Specimen of Spontaneous Rupture of the Uterus Due to the Use of Pituitrin.
Paper:
Mr. Gordon Ley: The Pathology of Accidental Hæmorrhage.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, May 31st.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 5 P.M., Mr. D. Armour: Subphrenic Abscess.
TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 5 P.M., Dr. R. J. Reece: Public Health.
WEDNESDAY.—2 P.M., Mr. Addison: Operations. 5 P.M., Dr. Owen: Irregularities of the Pulse, their Clinical Significance.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 5 P.M., Mr. Baldwin: Practical Surgery.
FRIDAY.—2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 5 P.M., Mr. MacDonald: Senile Enlargement of Prostate.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon: Mr. Sinclair: Surgical Anatomy of the Abdomen.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, May 31st.—2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.15 P.M., Selected Cases:—Mr. N. Fleming: External Eye Diseases. 3.15 P.M., Dr. Drinkwater: Methods and Apparatus for Anæsthesia in Dental Operations. 4.30 P.M., Dr. C. E. Sundell: Disturbances of Sleep in Children.
WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Eye Cases. Dr. J. Metcalfe: Radiology.
FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, May 31st.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Mr. Paton: Visual Fields.
TUESDAY, June 1st.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Risien Russell: Demonstration of Ward Cases.
WEDNESDAY, June 2nd.—2 P.M., Mr. Armour: Surgical Treatment of Tumours of the Spinal Cord. (II.) 3.15 P.M.
THURSDAY, June 3rd.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.15 P.M., Dr. Greenfield: The Pathology of the Nerve Cell and Peripheral Nerves.
FRIDAY, June 4th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Hinds Howell: Demonstration of Ward Cases.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
Special Post-Graduate Courses in Diseases of Children, illustrated by cases, specimens, and radiograms.
Mr. A. T. Pitts: The Pathology, Results, and Treatment of Dental Sepsis in Children (in the Out-patient Department)—
WEDNESDAY, June 2nd.—4 P.M., Lecture III., The Diagnosis and Treatment of Dental Sepsis.
Dr. R. Hutchison: Disorders of Digestion and Nutrition in Childhood (in the Museum)—
THURSDAY, June 3rd — 11 A.M. Lecture I., Infant Feeding.
Dr. T. Thompson: Diseases of the Central Nervous System in Children (in the Museum)—
THURSDAY, June 3rd.—9.15 A.M., Lecture I., Functional Disorders of Childhood.
Dr. D. N. Nabarro: Methods and Significance of Pathological Investigations (in the Pathological Laboratory)—
FRIDAY, June 4th.—5 P.M., Lecture I., Examination of Blood:—Enumeration: Blood Culture.
Mr. T. Higgins: Common Surgical Disorders of the Naso-pharynx and Annexa in Childhood (in the Museum)—
THURSDAY, June 3rd.—5.15 P.M., Lecture I., Introductory. Naso-pharyngeal Adenitis.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, May 31st.—5.30 P.M., Post-Graduate Lecture:—Dr. R. Wells: The Electrocardiograph in Practical Medicine. (II.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, June 4th.—9.15 P.M., Dr. S. A. K. Wilson: Syphilis in the Nervous System. (I.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
MONDAY, May 31st.—2 P.M., Dr. Melville: X Ray Department.
TUESDAY.—2 P.M., Dr. D. Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Wingfield: Cases Illustrating Onset.
WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Young: Cases Illustrating Onset.
THURSDAY.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration:—Dr. Hartley: Cases Suitable for Artificial Pneumothorax.
FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Burrell: Cases Suitable for Artificial Pneumothorax.
SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
TUESDAY, June 1st, AND THURSDAY.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—I., Causes of Infant Mortality; II., How to Establish an Infant Welfare Centre and Conduct an Infant Consultation.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Nutrition will be given at King's College for Women (Household and Social Science Department), Campden Hill-road, Kensington, W.
MONDAY, May 31st, AND TUESDAY.—5 P.M., Lectures VII. and VIII.:—Dr. E. Mellanby.
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, June 1st.—5 P.M., Lecture III., Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.
WEDNESDAY, June 2nd.—4 P.M., Prof. A. Hall: Diagnosis of Nervous Disease. (II.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, June 1st.—4.30 P.M., Lecture:—Dr. G. R. Murray: Examination of the Thyroid Gland and its Functions.

BOOKS, ETC., RECEIVED.

BALE, JOHN, SONS, AND DANIELSSON, London.
Essentials of Tropical Medicine. By W. E. Masters, M.D. Brux. Pp. 702. 42*s.*

FIFIELD, A. C., London.
A British Nurse in Bolshevik Russia. The Narrative of Margaret H. Barber. April, 1916–December, 1919. With a Foreword by the Rev. Harold Buxton. Pp. 64. 1*s.* 6*d.*

LONGMANS, GREEN AND CO. B. QUARITCH, DULAP AND CO. THE BRITISH MUSEUM (NATURAL HISTORY), London.
A Handbook of British Mosquitoes. By W. Dickson Lang, M.A., Sc.D. Pp. 194. £1.

MACMILLAN AND CO., London and New York.
The Narcotic Drug Problem. By Ernest S. Bishop, M.D., F.A.C.P. Pp. 165. 8*s.*
Pellagra. By H. F. Harris, M.D. Pp. 421. 26*s.*

MARCUS, A., AND WEBER, E., Bonn.
Säuglingskrankheiten. Von Dr. W. Birk. Pp. 269. M.15.

NEWNES, GEORGE, London.
The Book of Potato Cookery. By Mrs. M. L. Wade. Pp. 64. 1*s.*

NOSTRAND, D. VAN, New York.
Colloids in Biology and Medicine. By Professor H. Bechhold. Authorised translation from 2nd German ed., with Notes and Emendations by J. G. M. Bullowa, A.B., M.D. Pp. 464. 31*s.* 6*d.*

SCHOOL PRESS, Rupert-street, London, E.1.
The Pharmacopœia of the London Hospital. Compiled by F. A. Hocking, B.Sc., Pharmaceutist to the Hospital. Pp. 247.

SCIENTIFIC PRESS, London.
The Nursing of Chronic Patients. By E. C. Barton, R.R.C. Pp. 126. 1*s.* 3*d.*

UNIVERSITY PRESS, Cambridge.
Practical Plant Biochemistry. By Muriel W. Onslow. Pp. 178. 15*s.*

UNWIN, T. FISHER, London.
Feminism and Sex Extinction. By Arabella Kenealy, L.R.C.P. Dub. Pp. 314. 8*s.* 6*d.*

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Ergebnisse der gesamten Medizin. Von Professor Dr. Th. Brugsch. Pp. 657. M.180.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PROGRESS IN CHINA SINCE THE REPUBLIC.

BY WU LIEN TEH, M.A., M.D. CANTAB., LL.D.,
PHYSICIAN EXTRAORDINARY TO THE PRESIDENT OF CHINA.

IN spite of the disturbed state of the country since the establishment of the Republic in 1911, the progress of medical and sanitary science has been very marked and steady. This has shown itself in two ways: (1) the readiness with which both the Central Government and the provincial authorities have established and supported hospitals and institutions of a sanitary nature; and (2) the increased interest shown by the general public in Western medicine, home cleanliness, and matters bearing a hygienic value.

The Plague Prevention Service.

The new era in modern preventive medicine may be said to have commenced in 1911, when the Chinese Government and people noticed the great superiority of accurate scientific methods as compared with crude haphazard methods for the suppression of the pneumonic plague in Manchuria. On one hand, they saw a body of clean, earnest, and fearless young men, equipped with knowledge, microscopes, instruments, and disinfectants, and succeeding in their work of suppressing the epidemic; on the other, they encountered talkative, old-fashioned, uncertain men, whose one idea was to needle and drug the patients, and who, because they took no precautions against the disease, died as easily as the patients. One great result of this epidemic was the establishment of the North Manchurian Plague Prevention Service, which I had the honour to direct, consisting of hospitals at Harbin, Tsitsihar, Sansing, Newchwang, Taheiho, Manchouli, and Lahasusu. Harbin, being the commercial centre of North Manchuria and also the principal focus of infection in 1911, has the largest hospital, covering an area of six English acres and containing an up-to-date bacteriological laboratory capable of handling all sorts of bacteriological research. In ordinary times, when no epidemic exists, these hospitals are used for general purposes, surgical operations being performed and in-patients suffering from various ailments being admitted for treatment. The medical staff of the Plague Prevention Service consists of ten male and two female doctors, distributed among the different hospitals. Inside the hospital at Harbin there is a fine medical library, much patronised by the American and other foreign doctors of the city. An interesting museum of medical objects is also attached to it. Besides annual medical reports, the Plague Prevention Service has published two voluminous scientific reports containing research and other matters carried out by members of the Service. Now and then, as during the last summer, another epidemic than plague—namely, cholera—claimed the attention of the staff. Although very severe, it was suppressed within six weeks with the low mortality of 14 per cent., as compared with a mortality of 50–60 per cent. in other cities, where the outbreak did not subside until the end of November.

Interesting Medical Landmarks.

In November, 1913, a presidential mandate was issued authorising the dissection of dead bodies in China. This, together with the Imperial sanction of cremation of cadavers from plague in 1911, has undoubtedly paved the way further for medical progress in China. Another interesting landmark in the annals of medicine in this country was the foundation of the National Medical Association in 1914, when 30 medical graduates from European, American, Japanese, and Chinese colleges met together in Shanghai and formed the nucleus of the Association. It has now a membership of over 450 male and female members. The first President was Dr. Yen Fu Ching, M.D., of Harvard, and the second was myself. So far two conferences of the Association have been held, one in 1915 (Shanghai) and one in 1916 (Canton). The third one will be held this year in Peking in conjunction with the Medical Missionary Association, at which it is expected famous anatomists, physiologists, and specialists will attend from various parts of the world.

On Sept. 30th, 1915, an important mandate was issued recognising Western medicine as the proper standard of medical practice in China. Anyone practising medicine in the country will henceforth be required to produce a certificate from the police. It would be better if this power were centred in the hands of a recognised Central Medical Council, but until that comes into being the police permit will have to stay.

Up to 1915 Peking had no proper hospital for the treatment of infectious disease, such as scarlet fever, diphtheria, typhoid, &c. Thanks to the liberal policy of the then Minister of Interior (Mr. Chu Chi Chien) a hospital for this purpose was built in the Tenth-street, North City, capable of accommodating 60 beds. This hospital has done most creditable work under the combined direction of Yen Chi Chung (graduate of Tokio University) and Dr. S. P. Chen (M.B. of Cambridge). Cases of small-pox are now sent to an auxiliary epidemic hospital in the grounds of the Temple of Heaven outside Chien Men.

The year 1914 saw the visit to this country of a commission of medical experts appointed by the Rockefeller Foundation to consider the possibility of establishing two first-class medical colleges in China for the training of future Chinese doctors. Another commission followed in 1915, and as a result it was decided to found two well-equipped colleges and hospitals, one in Peking and the other in Shanghai. The one in Peking is now nearly completed, and will be formally opened in the fall of 1920. The cost of this place has approximated 5 million gold dollars, and it is expected that the annual budget will not be less than 1 million, though only 100 students will be trained at one time. When finished and in working order the Rockefeller Medical College and Hospital of Peking will eclipse anything in existence in Europe or Asia in the magnificence of its architecture and the completeness of its outfit.

The Peking Central Hospital, upon which the writer devoted the best part of four years in collecting funds, constructing, and equipping, was finally opened on Jan. 27th, 1918. The total cost is $500,000. It is modelled upon the American plan and possesses three storeys and a basement. It contains four large wards, each accommodating 25 beds, as well as a series of fine private rooms for first and second-class patients. Until the opening of the Rockefeller Hospital, the Central Hospital will stand as the finest institution of its kind in China or Japan.

FIG. 1.—The New Rockefeller Hospital and Medical College in Peking: the Central Administrative Building.

As a result of the second visitation of pneumonic plague in China in 1918, the Central Government devoted the balance of the 1 million loan (obtained for the suppression of the epidemic) to the establishment of an institute for infectious diseases in the grounds of the Temple of Heaven, a beautiful spot covered with old pine trees. Here a series of isolated red-brick buildings have been erected for the different departments of the institute—e.g., investigation, serum, veterinary, chemical, &c. Over 40 experts, mostly graduates of Japan, are connected in one way or another with the institute. During the last summer, when cholera threatened Peking and the vicinity, this institute distributed vaccine made in its laboratories for use among the troops. The chemical department undertakes to analyse patent medicines and chemicals submitted to it for a fixed fee. The institute is connected with the Ministry of Interior, and comes directly under the Department of Sanitation.

The first medical college established in North China is Peiyang Medical College, now Naval Medical, founded in 1893 by Viceroy Li Hung Chang in honour of the services rendered to his family by the British missionary, Dr. Mackenzie. After Dr. Mackenzie's death several past students of the college were appointed directors, of whom the most prominent was Dr. W. T. Watt. The present staff consists of Dr. H. Y. King (director), four French, one British, and ten Chinese professors. The Army Medical College was started in Tientsin in 1903 by Viceroy Yuan Shi Kai, the first director being Dr. Hsu Hua Ching, one of the first four graduates of the Peiyang Medical College. In 1918 this college was transferred to Peking. As at present constituted, it occupies an enormous area in the East City between the Fifth and Tenth-streets, the ground comprising nearly 40 acres. Besides the college and hospital there will be built a veterinary college and a military drug factory. The whole place is under the efficient management of

Surgeon-General Chuan Shao Ching. The total cost is in the neighbourhood of $800,000.

Coöperation of Chinese and Foreigners.

A noteworthy feature of this medical progress is the increasing coöperation of Chinese and foreigners. Instead of adopting an exclusive policy, missionary institutions are inviting more and more the assistance of their Chinese colleagues. This liberal-mindedness is a wise one, for the natural teachers, healers, and research-workers in China are the Chinese themselves, many of whom have now received a first-class training abroad. In this respect the China Medical Board of the Rockefeller Foundation is more far-seeing than the authorities of the Hong-Kong University, for it has already on its staff at least 12 Chinese doctors out of a total of 33 teachers.

Other institutions which have contributed considerably to the progress of medicine in China are the Yale Medical School in Changsha (Hunan); the Union Medical Department of the Shantung Christian University (Tsinanfu); the Kung Yi Medical College and Hackett Medical College (both in Canton), where women receive a good training. The French Medical College in Canton, with which is affiliated the Hospital Doumer; the Sino-French Medical College at Changtehfu (Honan), to which is attached a small Institut Pasteur; and the Medical Department of the French Catholic University of Aurore in the French settlement of Shanghai.

One institution, unique in its way, has perhaps done more than any individual school for the propagation of hygienic ideas among the masses. This is the famous Tsinanfu Institute, founded in 1905 by the Rev. J. S. Whitewright,

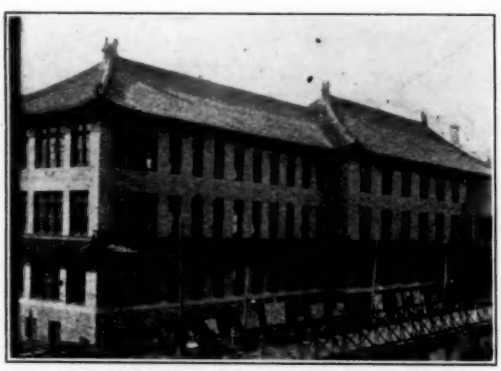


FIG. 2.—One of the General Wards where the sessions of the Joint Medical Conference of Feb. 21-28 were held.

of the English Baptist Mission. The buildings cover over three English acres and have cost over $150,000. About half a million persons visit the institute in the course of one year. There should be at least one such institute in every large city in China for the training of the masses in modern progress, including hygiene.

An interesting advance has been made in the appointment of a Terminology Committee, consisting of representatives of the Ministry of Education, National Medical Association, Medical and Pharmaceutical Society, Medical Missionary Association, and Kiangsu Educational Association, to determine the terms to be used throughout China. So far, the complicated terms of anatomy have been finished and accepted by the Government as official. The terms in bacteriology, chemistry, and physics have also been finished and are awaiting recognition.

It is generally acknowledged that until the poorer classes practise hygiene as well as the educated classes, infectious and other communicating diseases will not be stamped out. Knowledge of simple laws of health are therefore essential among high and low. With a view to carrying out such work, the Joint Council of Public Health Education was formed in 1916, consisting of representatives from the Y.M.C.A., National Medical Association, and Medical Missionary Association, with offices at 5, Quinsan Gardens, Shanghai. The two secretaries are Dr. W. W. Peter and Dr. S. M. Woo. Their method of work consists in preparing travelling exhibits of automatic models, plans, lantern slides, "movies," and other methods by which the attention of the audience may be arrested and retained. Besides the above, hundreds of thousands of pamphlets snd booklets have been issued and sold at cost price. Among the titles of these books may be found: How to Live, First Aid in the Home, Sanitation of a Chinese City, Tuberculosis, Infant Hygiene, Plague, Small-Pox, Venereal Disease, Care of Teeth, Care of Eyes, Cholera, Sexual Hygiene for Young Men, &c. These books have had an enormous sale, showing that the public are interested in promoting hygiene.

Pressing Needs in the Medical Line.

Acting on the principle that "Discontent is the Essence of Progress," I am still far from satisfied with the speed at which sanitary matters have been undertaken by the authorities. The public health of the country should be invested in the hands of a business-like Central Health Bureau, with power to control epidemic diseases, collect and distribute vital statistics, manufacture vaccines, and perform analyses. In addition, a Central Medical Council should be established in Peking, consisting of leading medical men as well as representatives of the Government, for the control and supervision of medical education and practice. The time has come when the old-style methods of practice should be absorbed into the modern methods, or else prohibited entirely in a limited number of years. The present system of simultaneously employing native-trained and Western-trained medical officers in Government hospitals and in the army is wasteful and backward. Hygiene should be more widely taught in elementary and high schools, and properly trained school doctors employed to supervise the health of the pupils, so that all the defects may be at once discovered and corrected instead of being allowed to undermine the health and often shorten the lives of the children. The supervision of public health should be in the hands of proper sanitary boards, comprising leading physicians and business men, as well as the police authorities. Social leagues should be founded wherever possible by leading citizens, men and women, and future mothers taught practical details for the management of a healthy home and family. The present tendency among the people, especially women, to buy patent medicines for headaches, constipation, menstrual pain, backache, sleepnessness, and even sterility is widespread, and can only be stopped by a fuller understanding of the laws of nature and a higher conception of the ethics of the medical profession. It may be further promoted by access to such public institutions as natural history museums, public health exhibits, industrial museums, commercial and technical displays throughout every large city in the land. As the trade of the country expands and technical and commercial education becomes more popular these institutions will, no doubt, be established.

REMOVAL FROM THE PANEL: THE TRIBUNAL UNDER THE NATIONAL INSURANCE ACTS.

THE recent discussion in the House of Commons upon the legal position of the practitioner threatened with removal of his name from the panel (THE LANCET, May 22nd, p. 1139) suggests that the procedure adopted is not very widely known. We therefore print, with substitution of the actual names, a typical correspondence on the subject.

Ministry of Health, 19th May, 1920.

Barchester Insurance Committee and Dr. A.B.C.

SIR,—I am directed by the Minister of Health to enclose a copy of the report made by the Inquiry Committee appointed to consider the representations made by your clients, the Barchester Insurance Committee, against Dr. A.B.C., and to state that, in view of the findings contained in the report, the Minister is not satisfied that the continuance of Dr. A.B.C. on the panel would be prejudicial to the efficiency of the medical service of insured persons, and he has accordingly decided to take no further action in the matter.

In view, however, of the breaches of the Medical Certification Rules disclosed in the report, the Minister would have been disposed to inflict a monetary penalty on Dr. A.B.C. by means of withholding Exchequer grant from the Committee, had the Committee recommended this action in the first instance; and for this reason he does not propose to make an order with regard to the costs of the inquiry,

I am, Sir, your obedient servant,
(Signed) R. H. CROCKE.

The Solicitor to Barchester Insurance Committee.

THE PSYCHOGENIC TREATMENT OF APOPLEXY.

A CORRESPONDENT has sent us a cutting from the *Medical Times* for May, in which Dr. Eli Grellet Jones, who is described as president of the "Medical Society of the United States," contributes an original communication on the Treatment of the After-effects of a "Stroke of Apoplexy." Dr. Jones, who is a graduate of Dartmouth Medical School, Hanover, N.H., has found that "kali mur., third decimal trituration" is the remedy upon which we can depend to prevent inflammatory deposits about the apoplectic focus. It not only helps to absorb exudates, but also helps to cure the hemiplegia. A heartfelt "God bless you, Doctor," from many old people whose lives he has thus prolonged, has comforted him greatly for his labours in this field. It will, we think, long be the duty of the general practitioner to make his patient's life as happy and comfortable as may be by psychogenic means in many incurable morbid conditions, especially by showing him how to live within the limits of his disabilities. Dr. Jones evidently carries out psychogenic treatment of this sort with satisfaction both to himself and to his patients, but we do not think he is, in so doing, making an original contribution to medical science, nor can we find in the American Medical Directory any reference to the society over which he is stated to preside.